Index To The Transactions and Journal of the New England Water Works Association

1882 to 1926

INDEX TO THE TRANSACTIONS AND JOURNAL OF THE NEW ENGLAND WATER WORKS ASSOCIATION

1882 TO 1950

TRANSACTIONS, 1883 TO 1885, JOURNAL, VOLUMES I TO LXIV

1886 TO 1950

FOREWORD

This Index in general follows the form of the 1939 index, several new topics having been added and some old ones dropped or combined. This is the fifth comprehensive index to be compiled and carries through Volume LXIV, 1950. It consists of three parts, a Subject Index, an Author Index and an Index to Affairs of the Association.

The Subject Index contains a classification of papers, topical discussions, reports of technical committees and specifications and standards of water works materials, equipment and structures. Cross references are limited to topics rather than papers. A few papers not related to water works matters are classified as "Miscellaneous".

The Author Index lists all papers published over an author's name, long and obscure titles being reworded.

The Index to the Affairs of the Association contains the following headings—Award of Dexter Brackett Memorial Medal (1917 to 1950), The Commemorative Award (1949 and 1950). Committee Reports and Association Affairs, the Constitution, General Affairs, Addresses and Resolutions, Historical Papers, Memoirs of Deceased Members and Portraits.

Proceedings of meetings including reports of officers and standing non-technical committees, presidential addresses unless confined to a specific technical subject are not indexed since they appear regularly in each volume.

The volume of the Journal appears in small Roman numerals, the page and year in larger Arabic numerals. The three volumes of Transactions for the three years 1883, 1884 and 1885 are identified by the abbreviation "Trans". The Journal was established in 1886

and the quarterly issues of the first two volumes were paged separately and are identified by interpolating the month of issue between the volume number and page number. Volumes I to XV began with the September issue, but in order to conform to the calendar year, later volumes were made to begin with the March issue, Volume XV (1900-1901) containing six issues to permit this change.

The compiler wishes to thank Professor Gordon M. Fair for his kindness in allowing him to use his card catalog of the 1939 index which materially simplified the task of making this new index.

KENNETH W. ROBIE

Brookline, Mass.
May 1951

SUBJECT INDEX

ACCOUNTING AND RECORDS.
Accounting for water districts. (V. W. Graham) xlvi 196, 1932.
Bulletin of Hoquiam Water Co. for water users. (H. C. Heermans) xxii 462, 1908.
Card system of service locations. (A. W. F. Brown) ix 226, 1894-95.
Classified cash book. (A. L. Sawyer) xxxi 54, 1917.
Collecting water bills. (C. W. Easter) lii 67, 1938.
Collections during depressions. (Discussion) xlvi 269, 1932.
Enforcing payment of water bills. (D. M. Sullivan) lii 244, 1938.
Gallons vs. liters and cubic meters. (Frederick Brooks) xvii 258, 1903.
Meter reading and billing system, Rochester, N. Y. (S. B. Story) xxxix 71, 1925.
Meter reading, billing and collecting revenue, Providence, R. I. (A. P. Murray) xl 457, 1926.
Meter records for small water works. (A. W. F. Brown) xxx 427, 1916.
Office methods and regulations. (R. J. Newsom) xxxiv 264, 1920.
Recording location of mains and services. (G. A. Kimball) viii 157, 1893-94.
Stealing water. (G. A. Kimball) iv 187, 1889-90.
Underground records. (R. F. Johnson) xxxvi 95, 1922.
Uniform accounting. (Committee report) xxxv 57, 333, 1921.
Uniformity in annual reports. (Committee report) 118, Trans. 1885.
Uniformity in municipal reports. (M. N. Baker) xv 189, 1900-01.
Water-works accounting. (J. F. J. Mulhall) xix 395, 1905.
Water-works accounting. (E. L. Pride) xxxi 68, 1917.
Water-works records. (A. S. Glover) iv 69, 1889-90.
ACTIVATED CARBON. See TREATMENT AND PURIFICATION.
AERATION. See TREATMENT AND PURIFICATION.
ALGAE. See QUALITY also TREATMENT.
AIR-CONDITIONING AND REFRIGERATION. See CONSUMPTION.
ANALYSIS.
Analysis of water. (T. M. Drown) iv 79, 1889-90.
Automatic transfer fermentation tube battery for determination of B. coli in water. (W. F. Wells) xlvi 283, 1932.
Bacteriological analysis of water. (C.-E. A. Winslow) xv 459, 1900-01.
Biological analysis of water. (W. T. Sedgwick) ii June 7, 1887-88; iv 50, 1889-90.
Color and its relation to character of water. (F. S. Hollis) xiii 94, 1898-99.
Determination of odors and tastes in water. (G. M. Fair) xlvii 248, 1933.
Effect of sunlight on determination of chlorine by ortho-tolidin method. (F. R. McCrumb and W. R. Kenny) xlii 410, 1928.
Elimination of errors in the ortho-tolidin method. (F. R. McCrumb) xli 386, 1927.
Function value and significance of water analyses. (C. D. Howard) liii 362, 1939.
Mathematics in the water works laboratory. (H. A. Thomas, Jr.) lx 153, 1946.
Turbidimeter. (Charles Anthony) xli 256, 1902.
APPRAISALS. See FINANCING.
AQUATIC GROWTHS. See QUALITY also TREATMENT.
AQUEDUCTS, CONDUITS, TUNNELS.
Catskill Aqueduct, New York, N. Y.
City tunnel and conduits. (W. E. Spear) xxvii 315, 1913.
Hudson River crossing. (Robert Ridgeway) xxv 317, 1911.
Chicopee Valley Aqueduct, Chicopee, Mass. (S. M. Dore) lxiv 13, 1950.
Cobble Mountain diversion tunnel. (H. H. Hatch) xlvii 133, 1933.
Cobble Mountain power tunnel. (H. H. Hatch) xlviii 123, 1934.
Construction of the Delaware aqueduct. (R. W. Armstrong) lv 135, 1941.
Copper sulphate for water-works use. (E. Fitzpatrick) liii 261, 1939.
Design and construction of pressure aqueduct for Boston, M.D.C. (S. M. Dore) lv 315, 1941.
Edisto River, Goose Creek tunnel aqueduct, Charlestown, S. C. (J. S. Gibson) lvi 102, 1942.
Inverted siphon for the Assabet River crossing of Wachusett Aqueduct. (S. M. Dore) lxiii 1, 1949.
Old aqueduct, Haverhill, Mass. (A. L. Sawyer) xxii 442, 1908.
Risks taken by municipality having but one supply main. (J. C. Hancock) vi 59, 1891-92.
Scituate Aqueduct, Providence, R. I.
Aqueduct in open cut. (T. T. Allard) xl 546, 1926.
Tunnel. (R. R. Bradbury) xl 535, 1926.
Sebago Lake conduit, Portland, Me. (H. U. Fuller, L. Metcalf and C. B. Mitchell) xxxix 394, 1925.
Second force main, New Bedford, Mass. (S. H. Taylor) xlix 206, 1935.
Shepaug tunnel, Waterbury, Conn. (R. A. Cairns) xliii 258, 1929.
Visit to new Croton aqueduct. (Desmond Fitzgerald) iii 161, 1888-89.
ARCHITECTURE AND LANDSCAPING.
Beauty an investment. (J. C. Stevens) xliii 370, 1929.
Landscape problems of Spot Pond reservoir, Boston, Mass. (F. L. Olmsted) xv 272, 1900-01.
Suit your building to its neighborhood. (A. L. Shaw) lvii 3, 1943.
ASSESSMENTS. See Financing.
BACTERIOLOGY OF WATER. See ANALYSIS, QUALITY, TREATMENT.
BIOLOGY OF WATER. See ANALYSIS, FISH, QUALITY, TREATMENT.
BOILERS. See PUMPING.
BRITISH WATER WORKS PRACTICE. See MANAGEMENT.
CASTINGS, SPECIALS. See PIPE (CAST IRON) also SPECIFICATIONS.
CATCHMENT AREAS. See WATERSHEDS.
CATHODIC PROTECTION.
Application of Magnesium for Cathodic protection. (F. M. Ruffing) lix 325, 1945.
Cathodic protection. (A. V. Smith) lii 233, 1938.
Cathodic protection of steel tanks and standpipes. (Committee Report) lxi 97, 1947.

Effect of cathodic protection on rust-tubercle pH. (F. J. LeFebvre & L. P. Sudrabin) lxiv 309, 1950.
Milford Water Co., considers cathodic protection. (M. N. Goff) lv 58, 1941.
Progress report of the committee on cathodic protection of steel tanks and standpipes. lxi 97, 1947.
CEMENT. See MATERIALS.
CEMENT LINED PIPE. See PIPE.
CHEMICALS.
Activated carbon-manufacture and specifications. (E. A. Sigworth) liii 265, 1939.
Lime for water works use. (J. G. Thompson) liii 255, 1939.
Manufacture of alum ferric sulphate and sodium aluminate. (F. A. Abbiati) lii 247, 1939.
Preparing and packing liquid chlorine. (L. L. Hedgepeth) lii 1, 1938.
CHLORINATION. See TREATMENT.
COAGULATION. See TREATMENT.
COAL. See PUMPING.
CONDUITS. See AQUEDUCTS.
CONSTRUCTION.
Construction and maintenance of water works. (C. W. Kingsley) iii 127, 1888-89.
Construction of water works structures. (J. E. Munroe) lxi 160, 1947.
Collapse of filter roof, Lawrence, Mass. (S. E. Thompson) xxii 237, 1908.
Groined Arch roofs. (Leonard Metcalf) xvii 398, 1903.
Some problems in water-works construction. (R. H. White) lxiv 8, 1950.
Troubles in tunnel and subway construction, Boston, Mass. (F. I. Winslow) xxvi 328, 1912.
CONSUMPTION.
Forms for water consumption statistics. (Committee report) xxxi 481, 1917.
How to reduce excessive consumption of water. (J. C. Haskell) ix 231, 1894-95.
Industrial use of water. (W. D. Collins) lii 396, 1938.
Maximum consumption in American cities. (A. P. Folwell) xlvi 389, 1932.
Municipal supply not for operating motors. (J. N. Tubbs) vi 152, 1891-92.
Municipal use of water. (John Venner) xvii 268, 1903.
Requisite amount of water for a public supply. (J. H. Shedd) xviii 1, 1904.
Safe ratio of pumping capacity to maximum consumption. (W. B. Sherman) iii 90, 104, 1888-89.
Use of water in gas operated refrigeration units. (Discussion) xlvi 264, 1932.
Water consumption. (C. W. Sherman) xxxvi 273, 1922.
Water consumption:
Boston, Mass., Metropolitan. (Dexter Brackett) xviii 107, 1904.
Milton, Mass. (D. A. Heffernan) xxviii 290, 1914.
Water consumption statistics: (W. B. Sherman) ii March, 1887-88.
Committee report. xv 352, 1900-01; xviii 115, 1904; xxi 112, 1907; xxv 66, 1911; xxvii 29, 1913; (E. S. Cole) xxv 66, 1911.
Water for air conditioning. (W. H. Sears) lii 452, 1938.
Water uses difficult to control. (W. F. Sullivan) xxviii 377, 1914.
COPPER PIPE. See PIPE (SERVICE).
COPPER AND HEALTH. See HEALTH.
COPPER SULPHATE TREATMENT. See TREATMENT.
CORPORATION COCKS. See PIPE (SERVICE).
CORROSION AND ELECTROLYSIS.
Action of water on materials for service pipes. (F. W. Gilcreas) xlix 170, 1935.
Action of water on metal. (D. A. Heffernan) xxxv 123, 1921.
Action of water on pipes. (Freeland Howe, Jr.) xxii 43, 1908.
Chemical dosages for corrosion prevention. (E. W. Moore) lii 311, 1938; erratum lii 466, 1938.
Control of red water and tuberculation of mains, Falmouth, Mass. (E. S. Chase) lvii 173, 1943.
Coolgardie pipe line, Australia, and correction of corrosion. (F. F. Longley) xxxix 421, 1925.
Correction of corrosion. (Chemists round table) lx 102, 1946.
Corrosion control. (E. W. Moore) lv 265, 1941.
Corrosion control at Biddeford, Me. (E. T. McDowell) liv 288, 1940.
Corrosion control by threshold treatment. (J. H. White) lxiii 96, 1949.
Corrosion in water-works engineering. (F. N. Speller) xxxix 90, 1925.
Corrosion of iron and steel pipes and standpipes. (Committee report) xliii 358, 1929.
Corrosion and its mitigation. (Committee report) lxiii 399, 1949; lxiv 406, 1950.
Corrosion and its prevention. (F. N. Speller) lii 228, 1938.
Corrosion of brass in water. (E. W. Moore) xlviii 47, 1934.
Corrosion of copper and copper base alloys in fresh water. (C. L. Bulow) lix 163, 1945.
Corrosion of 36 in. steel force main, Akron, O. (G. G. Dixon) xxxvi 157, 1922.
Corrosion problem. (H. C. Chandler) xlviii 345, 1934.
Corrosion problem in Cambridge, Mass. (M. C. Whipple) li 376, 1937.
Corrosive action of water on metals. (R. S. Weston) xxiv 559, 1910.
Corrosiveness of water to metals.
Part I, A study of electro-chemical equilibria. (T. R. Camp) lx 189, 1946.
Part II, Practical application of the theory. (T. R. Camp) lx 282, 1946.
Development of plastic coatings for corrosion protection in the water-works industry. (A. D. Smith) lx 117, 1946.
Dissolved oxygen and corrosion. (F. W. Gilcreas) li 380, 1937.
Electric grounding on water pipes. (J. O. R. Coleman) li 277, 1937.
Electrical grounds on water pipes. (H. S. Warren) xlviii 350, 1934.
Electrolysis. (E. E. Brownell) xiv 363, 1899-1900.
Electrolysis of water pipes: (C. H. Morse) vii 139, 1892-93; (C. A. Stone and H. C. Forbes) ix 25, 1894-95; (H. A. Storrs) x 33, 1895-96; (E. E. Brownell) xiv 363, 1899-1900; (F. A. W. Davis) xv 225, 1900-01; (A. A. Knudson) xv 244, 1900-01; (Discussion) xx 34, 1906; (E. B. Rosa) xxix 49, 1915; (A. F. Gans) xxxi 230, 1917; (C. G. Meyerherm) xliii 143, 1929.
Electrolysis of pipes, Lynn, Mass. (J. C. Haskell) x 278, 1895-96.

Electrolysis of steel force main, Akron, O. (V. B. Phillips) xxxvi 170, 1922.
Experiments and corrosion control, Newton, Mass. (F. W. Gilcreas) xlviii 104, 1934.
Filling of service pipe by sediment of tuberculation. (Discussion) viii 105, 1893-94.
Grounding. American Research Committee Report. lviii 168, 1944.
Grounding electric-light wires on water pipes. (F. E. Merrill) xxiii 180, 1909.
Lead-covered cables a cause of electrolysis of water and gas pipes. (A. A. Knudson) xxiii 164, 1909.
Monel metal for water works uses. (H. S. Arnold) xxxvi 86, 1922.
Neutralisation of corrosive action. (R. S. Weston) li 384, 1937.
Prevention of red-water plague. (W. H. Walker) xxxiv 33, 1920.
Relative corrosion and constitution of steel pipe. (W. H. Walker) xxvi 7, 1912.
Sodium hexametaphosphate as an aid in the control of corrosion. (Owen Rice) liv 25, 1940.
Soil-corrosion effects upon piping. Test of the U. S. Bureau of Standards. (J. D. Capron) xli 81, 1927.
Soil corrosion report. (H. W. Clark) xlix 110, 1935.
Summary of corrosion experiments. (H. W. Clark) liii 197, 1939.
Supplying less corrosive soft water. (Malcolm Pirnie) xlix 419, 1935.
Tubercles in iron and steel penstocks. (R. A. Hale) x 244, 1895-96.
Tuberculation of cast iron pipe. (C. W. Sherman) xlii 259, 1928.
Tuberculation and deterioration of water pipes, Belmont, Mass. (C. W. Sherman) xlviii 300, 1934.
Tuberculation of mains as affected by bacteria. (H. G. Reddick & S. E. Linderman) xlvi 146, 1932..

See also CATHODIC PROTECTION, PIPES, QUALITY and TANKS.

COSTS.
Comparing economy of structures of different classes. (G. F. Swain) ii March 32, 1887-88.
Cost of distribution systems. (W. W. Brush) liii 278, 1939.
Cost of small surface water supplies, New England. (G. A. Sampson) liii 121, 1939.
Expediency of raising water rates to offset increased costs. (J. J. Moore) xxxii 248, 1918.
Meeting water main costs by assessments for benefits. (M. N. Baker) xxxiii 186, 1919.
Municipal water and sewerage costs in Maryland. (Abel Wolman) xli 439, 1927.
Operating expenses under post-war conditions. (F. H. Marston) lxiv 119, 1950.
Operating expenses under post-war conditions. (P. A. Shaw) lxiv 125, 1950.
Operating expenses under post-war conditions. (R. T. McDowell) lxiv 131, 1950.
Operating expenses under post-war conditions. (T. L. Bristol) lxiv 129, 1950.

CROSS-CONNECTIONS.
Cross-connection regulations. (C. W. Mowry) xlix 66, 1935..
Cross-connection surveys. ((W. J. Scott) xlix 354, 1935.
Cross-connections. (Committee report) xlii 191, 461, 1928; xliii 79, 1929.
Cross-connections and back siphonage under war conditions. (Report of Committee on Sanitary Engineering National Research Council) lix 42, 1945.
Cross-connections and the Plumbing Testing Laboratory in the New Bedford Vocational School. (E. J. Sullivan) liv 179, 1940.
Cross-connections in Connecticut. (W. J. Scott) xli 365, 1927.
Double check valve maintenance. (F. O. A. Almquist) lii 379, 1938.
Pollution of the Rochester, N. Y., water supply through cross-connections. (E. Devendorf) lv 216, 1941.
Special equipment cross-connections. (A. V. Harrington) li 270, 1937.

CURB BOXES. See PIPE (SERVICE).

DAMS.
Arched masonry dam, Las Vegas, N. M. (W. T. Barnes) xxvi 356, 1912.
Cobble Mountain dam, Springfield, Mass. (H. H. Hatch) xlvi 327, 1932.
Comments on the construction of the Saugatuck Dam. (S. P. Senior) lx 266, 1946.
Construction and failure of Austin, Pa., dam. (T. C. Hatton) xxvi 262, 1912.
Construction of dams. (A. E. Walden) xxviii 268, 1914.
Construction of Norwalk Lake dam. (J. E. Riordan) lx 255, 1946.
Core wall of Wanaque Dam, N. J. (A. H. Pratt) xxxvi 457, 1922.
Dam, Woodbridge, Conn. (L. A. Taylor) vi 51, 1891-92.
Dam at Quincy, Mass. (L. A. Taylor) iii 167, 1888-89.
Dams in Japan. (Allen Hazen) lxiv 451, 1930.
Design of Bills Brook Dam, Barkhamsted Reservoir. (Wm. Dorenbaum) l 302, 1936.
Design of diversion conduit and waste works, Richards Corner Dam, New Hartford, Conn. (R. E. Wise) xxxi 595, 1917.
Echo Lake Dam, Milford, Mass. (Leonard Metcalf) xvii 146, 1903.
Engineering construction by the U. S. Reclamation Service. (M. O. Leighton) xx 127, 1906.
Failure of lower reservoir dam, Belfast, Me. (J. E. Hale) lviii 69, 1944.
Flood control structures. Part I, design. (J. E. Allen) lxii 62, 1948.
Flood control structures. Part II, construction. (C. H. Lovejoy) lxii 70, 1948.
Granville Dam, Westfield, Mass.:
Construction. (E. B. Myott) xliii 175, 1929.
Design. (C. A. Farwell) xliii 164, 1929.
Soil studies. (Charles Terzaghi) xliii 191, 1929.
Grouting and preparing foundation of Scituate dam, Providence, R. I. (J. V. Turner) xi 517, 1926.
Grouting rock foundations, Hartford, Conn., dams. (J. E. Garrat) xxxi 609, 1917.
Hollow concrete dams. (C. H. Eglee) xxii 20, 1908.
Hydraulic fill dams. (H. H. Hatch) lii 364, 1938; erratum, liii 238, 1939.
Hydraulic fill dams, Miami Conservancy District, O. (H. S. R. McCurdy) xxxvii 389, 1919.
Nepaug dam, Hartford, Conn. (H. W. Griswold) xxxi 603, 1917.

New Sand Wash Brook Dam and Reservoir, Pittsfield, Mass. (S. M. Ellsworth) lii 190, 1938.
Phelps Brook Dam, Hartford, Conn. (J. F. Shaughnessy) xxxii 39, 1918.
Rebuilding No-Town reservoir dam. (W. G. Classon) xlv 178, 1931.
Sand embankment dam, Chicopee, Mass. (M. G. Mansfield) xli 244, 1927.
Seepage through dams. (Arthur Casagrande) li 131, 1937.
Scituate dam, Providence, R. I. (F. B. Marsh) xl 477, 1926.
State control of dams and reservoirs. (C. E. Chandler) xxvi 173, 1912.
State supervision of dams and reservoirs. (F. P. McKibben) xxvi 242, 1912.
Supervision of dams and reservoirs, Conn. (C. M. Blair) lv 12, 1941.
Temporary dam of wood and sand bags, New Bedford, Mass. (R. C. P. Coggeshall). iii 200, 1888-89.
Woonsocket reservoir and dam, Smithfield, R. I. (B. I. Cook) xii 20, 1897-98.

DEPRECIATION. See ACCOUNTING also FINANCING.

DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES—U.S.A. PART I.
Albany, N. Y. (R. E. Horton and B. L. Smith) xlv 89, 1931.
Atlantic City, N. J. (Lincoln Van Gilder) xlv 66, 1931.
Boston, Mass. (F. A. McInnes) xlvi 8, 1932.
Bridgeport Hydraulic Co. (S. P. Senior) xxxv 309, 1921.
Brockton, Mass. (C. R. Felton) xx 385, 1906.
Brookline, Mass. (M. N. Baker) xlvi 77, 1932.
Brooklyn, N. Y. (W. F. Laase) xxix 546, 1915.
Buffalo, N. Y. (L. H. Knapp) xiv 206, 1899-1900.
Burlington, Vt. (F. H. Crandall) x 150, 1895-96.
Cambridge, Mass. (L. M. Hastings) xi 121, 1896-97; (H. M. Turner) xlviii 28, 1934.
Cohasset, Mass. (D. N. Tower) xxix 160, 1915.
Concord, N. H. (P. R. Sanders and F. A. Marston) xlvii 1, 1933; (P. R. Sanders) l 331, 1936.
East Jersey Water Co. (Clemens Herschel) viii 18, 1893-94.
East Providence, R. I. (A. C. Dickerman) xliii 239, 1929.
Fairhaven, Mass. (J. K. Nye) viii 175, 1893-94.
Fall River, Mass. (H. K. Barrows) xxxvi 549, 1922.
Franklin, N. H. (F. L. Fuller) vii 82, 1892-93.
Gloucester, Mass. (J. W. Moran) xxxv 381, 1911.
Greenfield, Mass. (G. F. Merrill xxix 150, 1915.
Hartford, Conn. (W. E. Johnson) xxxi 575, 1917.
Hinsdale, N. H. (A. L. Shaw) l 315, 1936.
Holyoke, Mass. (A. M. French) xviii 396, 1904; (P. C. Lucey) xxxiv 323, 1920.
Lawrence, Mass. (H. W. Rogers) 1 Dec. 6, 1886-87.
Lowell, Mass. (R. J. Thomas) xxvii 1, 1913.
Lynn, Mass. (J. C. Haskell) x 55, 1895-96.
Madison, Ancon and Emden, Me. (L. L. Wadsworth) xxxi 207, 1917.
Manchester, N. H. (J. H. Read) xlviii 275, 1934.
Marlborough, Mass. (G. A. Stacy) xvi 139, 1902.
Nashua, N. H. (H. G. Holden) xvi 249, 1902.
New Bedford, Mass. (S. H. Taylor) xxxvi 370, 1922.
Newport, N. H. (L. A. Taylor) xii 145, 1897-98.
Newton, N. J. (L. L. Tribus) xxiii 145, 1909.
New York, N. Y. (W. W. Brush) xxiii 371, 1909. (Joseph Goodman) lii 259, 1938.
Northborough, Mass. (R. S. Weston) li 248, 1937.
Peabody, Mass. (F. A. Barbour) xxi 348, 1907.
Portland, Me. (D. E. Moulton) xxxi 199, 1917. (J. W. Graham) xliii 364, 1929.
Portsmouth, N. H. (J. O. Ayres) xiii 67, 1898-99.
Pottsville, Pa. (N. J. Beisel) xxxix 47, 1925.
Poughkeepsie, N. Y. (J. C. Otis) xxiii 283, 1909.
Provincetown, Mass. (L. E. Hawes) xi 285, 1896-97.
Richmond, Va. (C. E. Bolling) iv 39, 1889-90.
Rochester, N. Y. (E. A. Fisher, B. C. Little and F. T. Elwood) xxiv 473, 485, 492, 1910.
Salem and Beverly, Mass. (F. F. Longley) xxx 35, 1916.
Springfield, Mass. (E. E. Lochridge) xxi 279, 1907; xlvi 323, 1932.
Syracuse, N. Y. (M. B. Palmer) xxxviii 226, 1924.
Tampa, Fla. (N. S. Hill, Jr.) xl 128, 1926.
Troy, N. Y. (E. L. Grimes) xxii 164, 1908.
Wakefield, Mass. (R. S. Weston) xlvii 239, 1933.
Waltham, Mass. (G. E. Winslow) viii 118, 1893-94.
Ware, Mass. (F. L. Fuller) ii Sept. 49, 1887-88.
Webster, Mass. (F. L. Fuller) ix 240, 1894-95.
Winchester, Mass. (E. C. Sanderson) xlviii 286, 1934.

DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES—U.S.A. PART II
Additional supply from Roaring Brook, Pittsfield, Mass. (H. A. Miller) xxvii 337, 1913.
Additions to Springfield's transmission mains. (P. C. Karalekas) lx 332, 1946.
Additional water supply, New York City. (W. E. Spear) li 227, 1937.
Boston Metropolitan water supply extension. (K. R. Kennison) xlviii 147, 1934.
Brook diversion to improve water supply, Manchester, N. H. (P. A. Shaw) l 291, 1936.
Catskill supply, New York, N. Y.:
  Esopus and Rondout. (Rudolph Hering) xviii 360, 1904.
  Schoharie development. (J. W. Smith) xxxiii 257, 1919.
  Status of development. (J. W. Smith) xxix 481, 1915.
  Visit to. (Desmond Fitzgerald) xxxii 393, 1918.

Changes in practice and improvement in water supply, Newton, Mass. (R. H. Ellis) xlviii 76, 1934.
Cushnoc Heights high service, Augusta, Me. (S. S. Anthony) l 267, 1936.
Developments in water works, Providence, R. I. (P. J. Holton, Jr.) xlix 399, 1935.
Development of Stoughton's water collecting system. (Laban Morrill) lv 206, 1941.
Emergency supply, 1911 and sources of supply, Worcester, Mass. (F. C. Kimball) xxvi 113, 1912.
Emergency water supply, Leominster, Mass. (W. G. Classon & C. W. Sherman) xxxix 450, 1925.
Engineering on additional water supply, Hartford, Conn. (H. W. Horne) xxxi 588, 1917.
Engineering problems in recent developments, Newton, Mass. (G. A. Sampson) xlviii 88, 1934.
Establishment of Metropolitan District, Baltimore County, Md. (V. B. Siems) xxxviii 250, 1924.
Experiences in Hartford, Conn. (C. M. Saville) xxx 195, 1916.
Extension, Boston, Mass., Metropolitan Water District. (X. H. Goodnough) xxxvi 189, 1922.
Fall River, Mass., industrial supply. (J. L. Hayden) lviii 243, 1944.
Four disasters, Fairhaven, Mass. (H. T. Gidley) liv 391, 1940.
Further water supply of New Bedford, Mass. (Edmund Wood) xi 202, 1896-97.
Groton, Conn., meets its growing demand for water. (L. F. Dutton) lxiv 91, 1950.
Improvement of water supply, Braintree, Mass. (R. S. Weston) xlix 53, 1935.
Improvement of water supply, Keene, N. H. (G. A. Sampson & R. S. Weston) xl 1, 1926.
Improvements in Rhode Island water supply. (C. L. Pool & J. J. Dillon) l 143, 1936.
Improvements to water supply, Fall River, Mass. (H. K. Barrows) xxx, 46, 1916.
Incorporating the Amoskeag Mills water supply into the Manchester, N. H., city system. (P. A. Shaw) lvi 212, 1942.
Increase of available water supply, with no capital investment, Utica, N. Y. (F. E. Beck) xxxviii 232, 1924.
Lawrence, Mass., water supply investigations and construction. (M. Knowles, M. Mansfield & P. Nugent) xxxix 345, 1925.
Metropolitan water supply of Mass. (A. F. Noyes) x 117, 1895-96.
Modernizing an established water-works system, Lynn, Mass. (R. J. Newsom) xxxiv 139, 1920.
New water supply, Providence, R. I. (F. E. Winsor) xxxvi 323, 1922.
New water-works system of Greenwich Water Co., Conn. (D. M. Wood) xlii 378, 1928.
One hundred years of public water supply for Boston. (J. J. Matera) lxiii 150, 1949.
Organization of the Portland, Me., water district. (D. E. Moulton) xliii 359, 1929.
Post-war plans for the water system of New Bedford, Mass. (H. C. Mandell) lviii 7, 1944.
Proposed auxiliary water supply, Brockton, Mass. (R. S. Weston) xxx 324, 1916.
Public ownership at Bridgewater, Mass., and improvements. (F. A. Barbour) xli 1, 1927.
Saugatuck development of Bridgeport Hydraulic Co. (S. P. Senior) lv 473, 1941.
Schuylkill water works at Philadelphia, 1840. lix 121, 1945.
Sources of supply, conduits and reservoirs, Rochester, N. Y. (J. F. Skinner) xxxviii 219, 1924.
The new Clinton, Me., water system and observations on ground water. (G. W. Coffin) lxii 250, 1948.
The evolution of a small water system, Rockport, Mass. (E. S. Chase & G. C. Houser) lvi 385, 1942.
Wanaque water-works project. (A. H. Pratt) xliv 386, 1930.
Water supplies of the New York Metropolitan District with special reference to their purification. (G. C. Whipple) xix 451, 1905.
Water supply for the Logan Airport, E. Boston, Mass. (G. W. Coffin) lxiv 45, 1950.
Water supply of Lunenburg, Mass. (H. E. Bailey) lv 475, 1941.
Water supply of Philadelphia with augmented facilities. (N. B. Jacobs) lxi 151, 1947.
Watuppa Ponds for Fall River, Mass., supply. (T. M. Stetson) i June 3, 1886-87.
See SUPPLY also DISTRIBUTION.
DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES—FOREIGN.
Camaguey, Cuba. (H. A. Young) xxiii 264, 1909.
Caracas, Venezuela. (Thorndike Saville) xlii 303, 1928.
European water supplies. (Allen Hazen) ix 109, 1894-95.
Geneva, Switzerland. (A. Bétant and G. C. Whipple) xxxv 19, 22, 1921; (A. Bétant) xlix 366, 1935.
Glasgow, Scotland. (J. M. Gale) xiv 240, 1899-1900.
Montreal, Canada. (G. Janin) xvii 272, 378 1903.
Quebec, Canada. (J. A. Tremblay) xxxix 208, 1925.
St. John, New Brunswick. (R. W. Wigmore) xlix 76, 1935.
Toronto water-works extensions. (William Storrie) lxi 1, 1947.
Water in Holland, 1887. (A. W. Locke) v 45, 1890-91.
Water in Japan. (W. S. Chapin) 1 Dec. 20, 1886-87; (Allen Hazen) xliv 451, 1930.
Water supply at Panama. (C. E. Davis) xx 252, 1906; (H. K. Higgins) xxv 454, 1911; (E. W. Clarke) xxvi 1, 1912.
Water works in Cuba. (J. F. Pierce) xlvi 184, 1932.
DIESEL ENGINES. See PUMPING.
DIKES. See DAMS also RESERVOIRS.
DISCHARGE MEASUREMENT. See HYDRAULICS.
DISINFECTION. See TREATMENT (DISINFECTION).
DISTRIBUTION.
Construction layouts and location of gates. (S. H. MacKenzie) xlvi 143, 1932.
Design of distribution systems. (G. S. Williams) xiv 97, 1899-00; (V. B. Siems and D. B. Biser) xliii 284, 1929.
Distribution system problems. (E. E. Minor) l 274, 1936.
Distribution pipe problems. (K. W. Robie) lxii 122, 1948.
Distribution problems. (F. B. Nelson) xliii 133, 1929.

Distribution and maintenance, Providence, R. I. (S. F. Nolan) xl 460, 1926.
Distribution system, Hartford, Conn. (Frank Brainard) xxxi 581, 1917.
Distribution system, Malden, Mass. (S. M. Allis) v 164, 1890-91.
Dual system of water mains. (D. M. Sullivan) lii 78, 1938.
Effect of earthquakes on water distribution system. (C. G. Hyde) lvi 14, 1942.
Experiences in Hartford, Conn. (C. M. Saville) xxx 195, 1916.
High service system, New London, Conn. (W. H. Richards) vii 148, 1892-93.
Hydrant connections and control of dual mains. (A. F. Ballou) lii 81, 1938.
Metropolitan water district. (E. C. Hultman) lii 151, 1938.
Operation of Bridgeport water distribution system. (D. H. Hall) xlvii 216, 1933.
Some things that should be done in constructing water works. (W. R. Hill) xiii 86, 1898-99.
Studies of the Needham, Mass., distribution system. (R. G. Oakman) lix 1, 1945.
Study and extension of distribution systems. L. C. Hough xli 14, 1927.
Testing distribution systems. (F. L. Fuller) xi 330, 1896-97.
See also DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES.

DIVERSION. See LEGAL.

DRINKING FOUNTAINS.
Drinking fountains. (W. L. Faxon) v 111, 1890-91.
Public water stations. (F. E. Merrill) xxviii 357, 1914.

DROUGHTS. See HYDROLOGY.
DUTY. See PUMPING.
DYSENTERY. See HEALTH.
ELECTROLYSIS. See CORROSION.
ELEVATED TANKS. See TANKS AND STANDPIPES.
EMERGENCY SUPPLY. See DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES, also SUPPLY.
ENGINES. See PUMPING.
EPIDEMICS, WATER-BORNE. See HEALTH.

EQUIPMENT.
Automobile for business. (F. F. Forbes) xxii 38, 1908.
Automobile for efficiency. (G. W. Batchelder) xxviii 281, 1914.
Cooperation in use of equipment. (Discussion) xxxiv 822, 1920.
Developments in electronic instrumentation. (D. M. Nielson) lix 265, 1945.
Electrical kinks in water works practice. (J. H. Read) xlvii 131, 1933.
Inspection of equipment. (T. E. Lally) xxxvi 450, 613, 1922.
Substitution of machinery for hand labor in pipe laying. (S. H. Taylor) xxxix 445, 1925.
Thread gage design and threading problems. (O. E. Koehler) lii 331, 1938.
Wells light for night work. (E. P. Gardner) vii 168, 1892-93.

EROSION. See GEOLOGY also WATERSHEDS.
EVAPORATION. See HYDROLOGY also WATERSHEDS.

EXCAVATING AND BACKFILLING.
Are trenching machines worth considering in excavating trenches in city streets? (Discussion) xxviii 76, 1914.
Back-filling trenches. (E. A. W. Hammatt) xii 160, 1897-98; (E. H. Gowing) xii 173, 1897-98.
Excavating in quicksand. (A. F. Noyes) iv 218, 1889-90.
Experiences with a trenching machine, Worcester, Mass. (G. W. Batchelder) xxxi 486, 1917; xxxiv 315, 1920.
Portable platform to aid in excavating trenches. (R. C. P. Coggeshall) ix 125, 1894-95.
Quicksand—its nature, behavior and control. (C. R. Gow) xxxiv 171, 1920.
Water pipe trenches vs. good roads. (W. E. McClintock) viii 71, 1893-94.
See also PIPE.

FEDERAL AGENCIES AND GRANTS.
Activities of the Works Progress Administration in water supply and distribution. (J. P. Hallihan) lv 28, 1941.
An appraisal of P.W.A. and W.P.A. water supply work in New England. (W. W. Brush) liv 34, 1940.
Community facilities program of the Federal Works Agency. (L. A. Gillett) lix 348, 1945.
Experiences with the Public Works Administration—a symposium. (F. A. Barbour, H. J. Lockwood, A. L. Shaw, W. J. Scott, E. Devendorf and A. D. Weston) xlix 22, 1935.
Federal construction subsidies for small public water supplies. (S. M. Ellsworth) liv 49, 1940.
Story of P.W.A. in Maine water works. (F. J. Reny) liv 282, 1940.

FILTRATION. See TREATMENT.

FINANCING, VALUATION, RATES.
Assessment and collection of water rates. (F. H. Crandall) xiv 133, 1899-1900.
Assessments for main pipe extensions. (Committee report) xxxiv 353, 1920.
Betterment assessment method for financing water main extensions. (S. R. Wrightington) xlix 162, 1935.
Changing from flat rates to metered rates. (D. L. Agnew) l 340, 1936.
Charge for hydrant service. (Discussion) 1 Sept. 29, 1886-87; xvii 62, 1903.
Charge to customers for water wasted by a broken pipe (Discussion) xxv 131, 1911.
Charge to customers for service connections. (Discussion) ii Sept. 19, 1887-88.
Collecting meter-rates. (G. F. Chace) iv 44, 1899-1900; xiv 230, 1899-1900.
Collecting water-rates. (J. H. Hathaway) 11 Sept. 68, 1887-88.
Collections of water rates and amounts uncollectible in 48 towns. xxvii 106, 1914.
Depreciation in water-works accounts with reference to uniform reports. (H. S. Chase) xxiv 305, 1910.
Depreciation in water-works operation and accounting. (Leonard Metcalf) xxiv 442, 1910.
Determining charges for public use of large streams. (F. H. Crandall) xi 344, 1896-97.
Domestic flow as affecting meter registration and water revenue. (H. W. Griswold and W. A. Gentner) xlvi 288, 1932.
East Providence Water Company rate case. (A. C. Dickerman) xliii 246, 1929.
Economy of municipal bonds for water-works construction. (C. W. Sherman) xi 15, 1926.

Effect of economic conditions upon water supplies. (A. D. Weston) xlvi 214, 1932.
Financial management of water works. (F. C. Coffin) xi 63, 1896-97.
Financing municipal water supply enterprises. (F. N. Waddell) xxxvii 321, 1924.
Financing main extensions. (W. C. Conroy) lx 1, 1946.
Financing main pipe extensions by assessment. (C. M. Saville) xxxix 185, 1925; xl 22, 1926.
Financing main pipe extensions, Hartford, Conn., distribution system. (W. A. Gentner) lii 178, 1938.
Financing water mains. (W. P. Melley) lvi 136, 1942.
Financing water systems in Mass. (P. F. Howard) lviii 333, 1944.
Funds for water works purposes. (L. G. Carlton) lii 124, 1938.
Inconvenience of deposit of a certified check with a proposal for an installation. (F. H. Hayes) xxix 143, 1915.
Inequalities in water rates. (H. G. Holden) iv 213, 1889-90..
Length of service of water works facilities. (R. J. Newsom) lv 465, 1941.
Maine water districts and appraisals. (H. D. Eaton) xix 147, 1905.
Meter rates. (Discussion) 41, Trans. 1883; xviii 222, 1904; xix 43, 1905; (W. H. Richards) xxii 289, 1908; (Committee report) xix 115, 322, 360, 1905; xx 237, 1906.
Meter rates and loss of water. (Committee report) xxviii 90, 199, 1914; xxx 361, 453, 1916.
Meter rates preferable to fixture rates. (F. C. Coffin) xviii 55, 1904.
Metropolitan water district financing and costs. (K. R. Kennison) lx 162, 1946.
Municipal water charges to industrial users. (A. C. King) lvi 133, 1942.
Muncipal water supply revenue not equitable means of reducing tax assessments. (J. H. Tighe) xviii 352, 1904.
Municipal water works financing in Massachusetts. (C. W. Sherman, H. A. Symonds and W. S. Johnson) xxx 279, 1916.
Pipe extension charges. (N. S. Hill, Jr.) xxxv 91, 1921.
Principles of rate-making. (M. H. Wherry) xl 249, 1926.
Proper basis for the establishment of water rates. (Committee report) vi 39, 1891-92.
Rates for water supply. (B. M. Wagner) xxix 1, 1915.
Rate of income for domestic service by different classes of residential property. (F. C. Jordan) xxiv 592, 1910.
Rate revision in municipal works. (Bertram Brewer) xxxii 1, 1918.
Rate structures. (T. L. Bristol) lii 70, 1938.
Revenue and operating expenses of municipally-owned water works, Massachusetts, 1913. (C. W. Sherman) xxx 260, 1916.
Revenue from fire services and unused domestic services. (Discussion) xliii 152, 1929.
Sinking-fund formulae. i March 31, 1887-88; i June 27, 1887-88.
Sinking-fund tables. (Desmond FitsGerald) vi 185, 1891-92; (F. L. Fuller) xii 103, 1897-98.
Statistical method for the estimation of average service life. (C. B. Benson) lvi 390, 1942.
Term for which water-works bonds should run. (C. W. Sherman) xxxvi 589, 1922.
Uniform classification of water rates. (Committee report) ii Sept. 32, 1887.
Use of bond instead of certified check to accompany proposals. (Committee report) xxxiv 225, 1920.
Water charges to municipalities in the Boston Metropolitan Area by the M.D.C. (K. R. Kennison) lv 522, 1941.
Water rates. (Discussion) xxxvii 196, 1923.
Water rates. (J. C. Chase) xvii 174, 1903.
Water rates. (J. B. Kennedy) lxi 202, 1947.
Water rates. (E. L. Taylor) xlix 360, 1935.
Why municipal water works are not self supporting. (Nathan Matthews) ix 1, 1894-95.

FIRES, FIRE PREVENTION, FIRE SUPPLIES.

Automatic sprinkler regulations. xv 103, 1900-01.
Automatic sprinkler systems. (H. E. Halpin) l 255, 1936.
Charges for private fire protection. (Discussion) xv 406, 1900-01; xxviii 60, 140, 1914; (Committee report) xxxiv 217, 1920; (H. A. Burnham) xxxviii 111, 1924.
Eliminating the conflagration hazard. (E. U. Crosby) xv 97, 1900-01.
Experiments and practical tables relating to fire streams. (J. R. Freeman) iv 95, 1889-90.
Experiences during the recent fires in York County, Maine. (L. G. Smith) lxii 164, 1948.
Field engineering service of the National Fire Protection Assn. (F. H. Wentworth) xli 428, 1927.
Fighting fires beforehand. (C. W. Mowry) xli 413, 1927.
Fire hose, water pressures and hydrant spacings. (W. R. Conard) xxxix 79, 1925.
Fire in office and shop of the Fairhaven Water Co. (H. T. Gidley) xl 29, 1926.
Fire protection by direct high-pressure from pumps. (G. A. Ellis) vii 27, 1892-93.
Fire protection classification. (G. W. Booth) xlvii 190, 1933.
Fire protection for factories, how it shall be determined and who shall pay for it. (J. H. Purdy) xviii 193, 1904.
Fire protection for manufacturing establishments. (Discussion) vii 176, 1892-93.
Fire protection and how paid. (Joel Foster) xii 270, 1897-98.
Grading water works with reference to fire protection. (Committee report) xxx 513, 1916; xxxi 6, 1917; xxxiii 372, 1919.
Fire service charges. (H. E. Halpin) xlix 345, 1935.
Fire service meters. (E. V. French) xix 291, 1905.
Handling fires while changing distributions mains. (G. F. Chace) x 230, 1895-96.
High-pressure fire systems:
Atlantic City, N. J. (L. VanGilden) xxxiv 146, 1920.
Boston, Mass. (F. A. McInnes) xxxvi 483, 1922; (E. E. Williamson) xli 194, 1927.
Providence, R. I. (E. B. Weston) xiii 85, 1898-99.
High-pressure fire systems from the underwriters viewpoint. (G. W. Booth) xxxvi 495, 1921.
Inch foot method of charging for fire protection. (F. J. Gifford) xlvi 370, 1932.

Insurance rates and the water service. (F. A. Barbour) xxii 322, 1908.
Loss of pressure caused by meters in fire supplies. (E. V. French) xii 73, 1897-98.
Metering fire services. (F. E. Beck) xxxiv 125, 1920.
Motor pumpers. (G. W. Booth) lii 461, 1938.
Nashua fire, May 4, 1930. (W. F. Sullivan) xlvi 204, 1932; (Appendix) xlvi 252, 1932.
Prevention of theft of water from fire services. (Discussion) xvi 290, 1902.
Private fire protection. (Committee report) xvi 290, 315, 1902; xvii 425, 1903; xviiii 198, 1904; xx 17, 1906.
Private fire protection and insurance rules. (Gorham Dana) xxii 465, 1908.
Reasonable requirements for fire protection. (C. Goldsmith) xxvi 305, 1912.
Reflections on the Bar Harbor Fire. (T. W. Grindle) lxii 154, 1948.
Recommendations of National Board of Fire Underwriters for improvements in fire department and water supply, Manchester, N. H. xix 115, 1905.
Relation of water-works engineers to fire service of factories. (E. Atkinson) xvii 58, 1903.
Required fire flows. (P. C. Charnock) l 249, 1936.
Salem fire. (F. A. McInnes and C. Goldsmith) xxix 94, 1915.
Salt water fire system, Boston, Mass. (F. A. McInnes) xiii 304, 1898-99.
Should fire services be metered? (Discussion) vi 27, 1891-92; xi 342, 1896-97; xv 419, 1900-01.
Standard schedule for grading cities and towns with reference to fire defenses and physical conditions. (J. S. Caldwell) xxxv 1, 1921.
Tests of capacity of steam fire engines, hydrants, and hose, Boston, Mass. (Dexter Brackett) ix 151, 1894-95.
Test of discharge of hose, Springfield, Mass. June 19, 1885. 152, Trans. 1885.
Tests of fire-service devices, Lowell, Mass. (W. F. Sullivan) xix 264, 1905.
Use and discard of auxiliary fire protection from a polluted source. (C. M. Saville) xxxvi 392, 1922.
Vibration in hose, producing heat. (Discussion) xxxv 42, 1921.
Water and fire department contacts. (P. C. Charnock) liii 337, 1939.
Water consumption during fires. (C. W. Mowry) xlvi 93, 1932.
Water service and fire protection of theaters. (W. P. Gerhard) ix 77, 1894-95.
Water supply at Boston fire, Nov. 23, 1889. (Dexter Brackett) iv 182, 1889-90.
Water supply at fires. (J. C. Haskell) vii 47, 1892-93.
Weight of main pipe for fire supply. (Discussion) v 18, 1890-91.
What a water supply engineer can do in the fire department. (J. E. Tryon) ix 93, 1894-95.
See also HYDRANTS.

FISH.
Eels in water works and their control. (G. W. Field) xv 390, 1900-01.

FLOODS. See HYDROLOGY.

FLUORIDES. See HEALTH, HYGIENE, EPIDEMIOLOGY.

FLUSHING. See PIPES (CLEANING).

FOUNDATIONS. See DAMS.

FORESTATION. See WATERSHEDS.

FREEZING AND FROST PROTECTION. See ICE, HYDRANTS, MAINTENANCE and PIPE.

FRICTION LOSSES. See HYDRAULICS.

FUEL. See PUMPING.

GAGES.
Air in pressure gages. (G. E. Winslow) ix 248, 1894-95.
High-water alarm for reservoirs. (W. P. Whittemore) iii 21, 1888-89.
Recording gages. (J. A. Gould) v 65, 1890-91.
Recording pressure gages. (F. C. Perry) x 255, 1895-96.

GATES, VALVES
Care of Gates. (Patrick Gear) xxvii 298, 1914.
Effect of small gate or valve in larger pipe line. (T. E. Lally) xxxvi 302, 1920.
Electrically operated gates. (Discussion) xxxvii 101, 1923.
Electrically operated valves and distant control. (Alfred Williamson) xxix 507, 1915.
Electrification of gate valves. (Payne Dean) xxxvi 264, 1922.
Experiences with a 30 inch gate. (H. S. Nevons) iv 212, 1889-90.
Gates and hydrants. (T. E. Lally) xlix 395, 1935.
Gate plan. 74, Trans. 1885.
Inspection and maintenance of gate valves. (C. W. Mowry) xlvii 111, 1933.
Locating gates. (Discussion) iii 13, 1888-89.
Maintenance of gate valves, Boston. (G. H. Finneran) xlvii 15, 1933.
Manganese bronze for valve stems. (W. R. Conard) xxxvi 32, 1922.
Packing gates. (Discussion) 92, Trans. 1885; 1 Sept. 71, 1886.
Reasons for adopting solid wedge valve, Boston, Mass. (G. H. Finneran) xxx 101, 1916.
Reasons for using double-disk valve. (J. M. Diven) xxx 106, 1916.
Relief of safety valves in distribution systems. (S. E. Babcock) iii 57, 1888-89.
Water pressure regulators. (A. O. Doane) xx 1, 1906.

GEOLOGY.
Erosion on the Pacific slope. (S. M. Allis) iii, 158, 1888-89.
Geologic features in ground water supply, New England. (Kirk Bryan) l 222, 1936.
Geology and ground water supplies in New England. (I. B. Crosby) xlvii, 74, 1933.

GROUTING AND GUNITING. See AQUEDUCTS, DAMS AND RESERVOIRS.

GROUND WATER, WELLS, FILTER GALLERIES.
Additional ground water supply, Woburn, Mass. (J. P. Wentworth) li 430, 1937.
Artesian well experiment, Taunton, Mass. (G. F. Chace) iv 221, 1889-90.
Basin and well covering, Waltham, Mass. (F. P. Johnson) viii 120, 1893-94.
Can tests by tubular wells be relied upon to show amount of water available. (W. C. Boyce) iii 27, 1888-89.
Cooperative ground water investigation in Connecticut. (J. G. Ferris) lvi 157, 1942.
Cooperative ground water investigation in Massachusetts. (M. L. Brashears, Jr.) lvi 152, 1942.

Driven wells:
Bretton Woods, N. H. (W. P. Gerhard) xviii 247, 1904.
Brookline, Mass. (F. F. Forbes) xi 195, 1896-97.
Lowell, Mass. (George Bowers) ix 66, 1894–95; x 226, 1895-96; xiii 30, 1898-99.
Driven wells as a source of water supply. (A. F. Noyes) 1 June 19, 1886-87; (F. F. Forbes) v 141, 1890-91.
Driven wells. (Discussion) 1 Sept. 79, 1886-87.
Electrical and radioactive methods of well logging for ground-water supply. (J. C. Baffa) lxii 207, 1948.
Ground water conditions in the vicinity of Mashapaug Pond, Providence, R. I. (W. B. Allen and R. M. Jeffords) lxii 38, 1948.
Ground water in pre-glacial buried valleys, Mass. (I. B. Crosby) liii 372, 1939.
Ground water supplies. (D. E. Stearns) lviii 338, 1944.
Ground water supplies in New England. (Committee report) lxiii 175, 1949.
Ground water supply by shallow driven wells. (R. W. Horne) l 207, 1936.
Ground water supply, Dayton, Ohio. (W. W. Morehouse) li 219, 1937.
Ground water supplies, Mass. (F. H. Kingsbury) l 149, 1936.
Ground waters as sources of public water supply. (W. S. Johnson) xxiii 461, 1909.
Infiltration galleries, Des Moines, Iowa. (C. B. Burdick) xxxviii 203, 1924.
Iron in ground water. (H. W. Clark) l 229, 1936.
Low-velocity gravel-packed wells. (P. F. Howard) li 424, 1937.
Methods and costs of developing ground water supplies, N. E. (P. F. Howard) liii 134, 1939.
Needham gravel-packed well. (B. F. Snow) li 409, 1937.
New trends in ground water development. (Ross Nebolsine) lvii 186, 1943.
Pollution of well supplies. (E. S. Chase) liii 318, 1939.
Pollution of industrial ground water supply. (G. M. Fair) liii 316, 1939.
Quantitative estimation of ground waters for public supplies. (M. L. Fuller) xxvii 233, 1913.
Ranney water collectors in New England. (J. S. Asketh) lxi 312, 1947.
Safeguards for ground water supplies. (L. K. Sherman) liii 299, 1939.
Seismic reconnaissance of ground water development. (S. Keith and D. Linehan) lxiii 76, 1949.
Small ground water supply systems for state parks. (A. E. Howard) lxii 141, 1948.
Soils from which water supplies may be drawn by filter galleries or driven wells. (Phineas Ball) iii 29, 1888-89.
Sub-surface collecting system and quality of water, Newton, Mass. (E. H. Rogers) xxxvii 312, 1928.
Test of lifting water from wells with air. (F. A. W. Davis) xiii 51, 1898-99.
Underground water, how to obtain and care for it. (George Bowers) xvii 127, 1903.
Utilizing a spring as a source of water supply. (L. E. Hawes) xi 156, 1896-97.
Well covering, Waltham, Mass. (F. P. Johnson) viii 120, 1893-94.
Well rater and sampler. (P. F. Howard) l 219, 1936.
Well, Waltham, Mass. (F. L. Fuller) vi 183, 1891-92.
GROUNDING. See CORROSION AND ELECTROLYSIS.
HEALTH, HYGIENE, EPIDEMIOLOGY.
Copper and health. (W. J. Schneider) xliv 485, 1930.
Drinking water and disease. (W. P. Mason) vi 139, 1891-92.
Flies and disease. (H. D. Pease) xxv 17, 1917.
Fluorides in relation to dental decay. (B. G. Bibby) lviii 101, 1944.
Gastro-enteritis, Peabody, Mass., October 1913. (A. D. Weston) xxxiv 193, 1920.
Infectious hepatitis. (R. F. Feemster) lx 32, 1946.
Lead poisoning by lead service pipe. (F. F. Forbes) xv 58, 1900-01.
Lead poisoning by water and its prevention. (R. S. Weston) xxxiv 239, 1920; xxxv 126, 1921.
Longevity of typhoid bacillus. (J. A. Johnson) xix 506, 1905.
Massachusetts water supplies and the typhoid rate. (H. W. Clarke) xxxiv 203, 1920.
Mortality rates of Philadelphia in relation to water supply. (J. O. Vogleson) xxviii 127, 1914.
Mosquitoes and their extermination. (W. L. Underwood) xviii 161, 1904.
Oysters a cause of typhoid fever, Washington, D. C. (W. T. Sedgwick) xxv 470, 1911.
Poisonous effects of copper. (F. B. Mallory) xli 271, 1927.
Relation of improvements in water supplies to typhoid fever and other intestinal diseases. (C. A. Holmquist) xxxviii 237, 1924.
Relation of intensity of typhoid to character of water carriage. (W. P. Mason) xix 412, 1905.
Relative responsibility of public water supplies and other factors for the causation of typhoid. (W. T. Sedgwick and C.-E. A. Winslow) xx 51, 1906.
Sanitation and public health experiences in Europe. (L. W. Trager) lx 43, 1946.
Typhoid epidemics:
Cleveland, Ohio, 1903-04. (G. C. Whipple) xx 266, 1906.
Ithaca, N. Y., 1903. (G. A. Soper) xviii 431, 1904.
Kennebec Valley, Me., 1902-03. (G. C. Whipple and E. C. Levy) xix 163, 1905.
Maidstone, England. (W. P. Mason) xxiv 299, 1910.
Plymouth, Pa., 1885. (C. W. Sherman) xli 23, 1927.
Salem, O. (W. H. Dittoe) xxxv 335, 1921; xxxvi 262, 1922.
Watertown, N. Y., 1904. (G. A. Soper) xxii 87, 1908.
Typhoid fever and water supplies. (H. F. Mills) v 149, 1890-91.
Toxicology of copper used for water treatment. (H. E. Smith) xix 491, 1905.
Vital statistics, Cambridge, Mass. (L. M. Hastings) xx 406, 1906.
Water-borne diseases. (Theobald Smith) x 203, 1895-96.

Water supply, diarrheal diseases and infant mortality, Burlington, Vt., 1879-1905. (M. N. Baker) xx 163, 1906.
Water-borne diseases in New York State. (Earl Devendorf) xlvii 298, 1933.
Water-borne diseases in New England, 1920 to 1936. (A. E. Gorman) liii 473, 1939.
Water-works emergencies from health standpoint. (W. J. Scott) xlvi 133, 1932.
HISTORICAL.
Looking backward. A symposium. (A. W. F. Brown, J. C. Chase, B. I. Cook, L. M. Hastings, J. S. Maxcy, D. Porter, J. C. Whitney) xlvi 66, 1932
Storrow's treatise on water works, 1835. (G. M. Fair) lix 124, 1945.
HOSE. See FIRES, etc.
HOT WATER BOILERS. See PLUMBING.
HYDRANTS.
Arrangement of hydrants and water pipes for protection of a city against fire. (J. R. Freeman) vii 49, 152, 1892-93.
Care of fire hydrants. (Patrick Gear) xxviii 298, 1914.
Care of hydrants in winter. (G. I. Bailey) xiv 116, 1899-1900.
Control of hydrants. (Discussion) x 143, 1895-96.
Desirable pressure at hydrants. (E. V. French) xxv 247, 1911.
How to set hydrants to prevent freezing. (Discussion) iv 9, 1889-90.
Hydrant connections for fire engines. (F. A. Marston) xxxvii 369, 1923.
Hydrant experiments. (C. L. Newcomb) xxi 378, 1907.
Hydrant-flow and pipe-condition tests. (Scott Keith) lx 68, 1946.
Hydrant outlets. (G. E. Winslow) v 26, 1890-91.
Hydrants. (G. A. Stacy) iv 32, 1889-90.
Hydrants broken by automobiles. (Discussion) xxxiv 49, 1920.
Large and small fire hose, water pressures and hydrant spacing. (W. R. Conard) xxxix 79, 1925.
Painting fire hydrants to indicate capacity. (J. W. Randlette) lii 85, 1938.
Proper size for hydrants. (Discussion) ii Sept. 94, 1887-88.
See also FIRES and ICE.
HYDRAULICS.
Alignment charts for pipe lines. (W. F. Covil) liii 103, 1939.
Analysis of flow in pipe networks by method of balancing flows. (C. E. Carter and S. Keith) lix 273, 1945.
Application of the pitometer to water distribution system. (E. S. Cole) lviii 74, 1944.
Discharge of conduit supplying Mt. Hope Reservoir, Rochester, N. Y. (E. Kulchling) xiii 135, 1898-99.
Discharge of water mains as determined by pressure gage. (G. A. Ellis) i Sept. 19, Dec. 18, 1886-87.
Effect and remedy of water hammer on main pipes. (J. C. Hancock) v 11, 1890-91.
Effect of water hammer on cement lined pipe. (G. E. Winslow) iv 191, 1889-90.
Eliminating water hammer from a high-pressure regulating valve. (S. L. Ruggles) xxxvii 402, 1923.
Expansion of Freeman method for solution of pipe flow problems. (W. E. Howland) xlviii 408, 1934.
Frictional head in a force main. (F. F. Forbes) vi 164, 1891-92.
Friction in pumping mains. (F. C. Coffin) x 234, 1895-96.
Gain in head at take-offs. (W. E. Howland) xlix 14, 1935.
Hydrant pressure and flowage tests, Portland, Me. (L. R. Smith) xlvii 107, 1933.
Hydraulic analysis of distribution systems by electric analyser (T. R. Camp and H. L. Hazen) xlviii 383, 1934.
Hydraulic investigation of a small water works system and effects of main cleaning. (R. H. Ellis) liv 155, 1940.
Hydraulic investigation of water distribution systems in field and office. (G. M. Fair) lv 271. 1941.
Hydraulic service characteristics of small metallic pipes. (G. M. Fair, M. C. Whipple and C. Y. Hsiao) xliv 499, 1930.
Hydraulics of distribution systems. (T. R. Camp) lvii 334, 1943.
Loss of head in bends. (W. E. Fuller) xxvii 509, 1913.
Measurements of flow of water in a 36 in. and 30 in. compound pipe. (L. M. Hastings) viii 189, 1893-94; ix 58, 1894-95.
New England and hydraulic science. (C. W. Sherman) xlvii 153, 1933.
Parshall measuring flume at Providence, R. I. (C. G. Richardson) xlviii 1, 1934.
Pipe line friction coefficients. (Committee report) xlix 106, 1935; xlix 235, 1935.
Pitometer and its uses. (E. M. Blake) xx 152, 1906.
Pitot tube for water flow and pressure studies. (H. B. Smith) xliv 471, 1930.
Reducing water ram caused by direct acting pumping engines. (G. E. Winslow) xv 493, 1901.
Water hammer. (Discussion) i Sept. 73, 1886-87; xxv 76, 1911.
Water hammer caused by water in air chamber of a pump. (E. E. Farnham) vi 26, 1891-92.
Water hammer in house plumbing which does not include a tank. (A. F. Noyes) 62, Trans. 1885.
Water hammer in pipe lines. (H. K. Barrows) xlv 72, 1931.
Water ram in distribution system, Hartford, Conn. (C. M. Saville) xxvii 183, 1913.
Water ram from a hydraulic elevator. (C. W. Sherman) xxvii 169, 1913.
See also LABORATORIES.
HYDROLOGY.
Areal mean precipitation of drainage areas. (J. B. Belknap) xlvi 272, 1932.
Capacity of the Sudbury River and Lake Cochituate reservoirs in time of drought. (Desmond FitsGerald) ii Dec. 8, 1887-88.
Causes of rainfall. (W. M. Davis) xv 338, 1900-01.
Cooling-water benefits from increased river flows. (M. LeBasquet, Jr.) lx 111, 1946.
Determining mean precipitation on a drainage basin. (R. E. Horton) xxxviii 1, 1924.
Drought and its effect in New England 1941, (symposium). (W. J. Scott, W. J. Shea, R. M. Soule, E. L. Tracy, L. W. Trager) lvi 237, 1942.
Drought in New England, 1929-1930. (H. B. Kinnison) xlv 145, 1931.

Drought runoff in New England. (C. E. Knox) lxiii 221, 1949.
Effect of the 1944 hurricane on Mass. water supplies. (F. H. Kingsbury) lix 13, 1945.
Effects of the 1929-1930 drought upon water supply, Rockport, Mass. (G. C. Houser) xlv 164, 1931.
Emergency water supply for Rutland, Vt., following flood of June 3, 1947. (E. L. Tracy) lxii 103, 1948.
Estimating stream flow in New England. (H. K. Barrows) xix 437, 1905.
Flood of March, 1936, Massachusetts. (A. D. Weston) li 90, 1937.
Flood of March 1936, New York State. (A. F. Dappert) li 69, 1937.
Flood of March 1936, Pennsylvania. (W. L. Stevenson) li 80, 1937.
Flood producing storms, Atlantic seaboard. (M. W. Hayes and H. R. Byers) li 207, 1937.
Floods and droughts on New England streams. (C. M. Saville) xxxix 1, 1925.
Flood and hurricane at Ware, Mass. (G. F. Merrill) liv 186, 1940.
Fluid permeability. (Committee report) lxiv 396, 1950.
Hurricane of 1944 and Rhode Island water supplies. (W. L. Shea) lix 19, 1945.
Hurricanes with special emphasis on New England hurricanes of 1938 and 1944. (L. T. Rogers) lix 9, 1945.
Great September storm, 1932. (G. V. White) xlvii 164, 1933.
Influence of forests upon rainfall and stream flow. (G. F. Swain) i March 11, 1886-87.
Measurement of rainfall and snow. (R. E. Horton) xxxiii 14, 1919.
Meteorological conditions during floods. (H. R. Byers) li 215, 1937.
New England droughts and floods. (C. M. Saville) li 326, 1937.
New England rainstorm, Nov. 3, 4, 1927. (C. F. Brooks and J. H.. Weber) xlii 91, 1928; (X. H. Goodnough) xliv 106, 1930; xlii 150, 1928; xliv 119, 1930.
New Year's flood of 1949 in Western Massachusetts. (Angelo Iantosca) lxiii 287, 1949.
New York State flood, 1935. (A. F. Dappert) xlix 376, 1935.
Ohio River flood of 1936. (F. H. Waring) li 103, 1937.
Problems of the spring overturn in Stratified lakes. (S. Deevey, Jr.) lx 182, 1946.
Rainfall and yield of drainage areas. (Committee report) lix 285, 1945; lxii 310, 1948; lxiv 398, 1950.
Rainfall available for water supply. (Desmond FitsGerald) i Sept. 41, 1886-87.
Rainfall in New England. (X. H. Goodnough) xxix 237, 1915; xxv 228, 397, 1921; xl 178, 1926; xliv 157, 1930.
Rainfall in New England, Part 1, Rainfall in Mass. (G. V. White) lvi 405, 1942.
Rainfall in New England, Part 2, rainfall in Me., N. H., Vt. (G. V. White) lvii 15, 1943.
Rainfall in New England, Part 3, rainfall in R. I., Conn., Eastern N. Y. (G. V. White) lvii 201, 1943.
Rainfall of New England. (C. F. Brooks) xliv 1, 1930.
Rainfall of New England. (J. H. Weber): Annual rainfall. xlii 137, 1928; xliv 19, 1930.
Historical statement. xliv 6, 1930.
Mean monthly rainfall of southern New England. xlii 291, 1928; xliv 45, 1930.
Minimum and maximum rainfall of southern New England. xliv 57, 1930; xlii 414, 1928.
Seasonal rainfall. xliv 32, 1930; xlii 278, 1928.
Rainfall of northern New England. (Gragg Richards) xlii 431, 1928; xliii 50, 1929; xliv 74, 100, 1930.
Rainfall and run-off from catchment areas, New England. (L. M. Hastings) xviii 32, 1904.
Rainfall and run-off measurements. (Committee report) xxxv 151, 1921.
Rainfall and stream-flow measurements, Holyoke, Mass. (P. J. Lucey) xxxiv 323, 1920.
Secular and local variations of weather and climate affecting water supply. (W. H. Niles) v 74, 1890-91.
Southern New England hydrology. (C. M. Saville) xlvii 363, 1933; xlvii 255, 1934.
Stream-flow data, 1875-1898, Nashua and Merrimac rivers. (C. E. Chandler) xxii 409, 1908.
Uses of rainfall records. (L. M. Hastings) xxxiii 72, 1919.
Water conservation in New Hampshire. (R. S. Holgren) lvi 1, 1942.
Watershed leakage in relation to gravity water supplies. (R. E. Horton) xxxiii 306, 1919.
Yield of catchment areas. (Committee report) xxviii 397, 1914.

ICE AND THAWING.
Anchor ice. (R. C. P. Coggeshall) x 265, 1895-96.
Anchor ice and a recording pressure gage affected by a clogged conduit. (C. W. S. Seymour) ix 223, 1894-95.
Cold weather troubles, a symposium. (P. R. Sanders, G. H. Finneran, W. F. Sullivan and F. H. Kingsbury) xlviii 320, 1934.
Conditions in water distribution systems during severe winter of 1917-18. (Committee report) xxxii 267, 1918.
Electric thawing machine. (F. J. Gifford) xxxiv 114, 1920.
Examination of hydrants in cold weather. (G. A. Stacy) vii 222, 1892-93.
Freezing and thawing of water mains and services. (A. A. Ross) xlix 176, 1935.
Freezing of house meters. (Discussion) xviii 65, 1904.
Freezing of hydrants. (Discussion) ii Sept. 12, 1887-88.
Frost penetration. (H. V. Fuller) l 299, 1936.
Ice formation (H. S. Barnes) xxiv 576, 1910.
Lime to thaw pipes. (C. K. Walker) vii 220, 1892-93.
Macadam road thawed with steam. (E. B. Weston) xiii 90, 1898-99.
Naphtha lamp for thawing frozen pipes. (Discussion) 103, Trans. 1885.
Pipe thawing by electricity. (H. C. Hamilton) xlviii 314, 1934.
Portable boiler for thawing frozen pipes. (C. K. Walker) xviii 217, 1904.
Prediction of frost penetration. (W. L. Sharmon) lix 356, 1945.
Protecting pipes from freezing. (Discussion) xxii 36, 1908.

Protection of pipes from frost. (E. A. Jones) iii 125, 1888-90.
Studies of frost penetration. (H. U. Fuller) liv 275, 1940.
Thawing frozen service boxes and pipes. (Discussion) xviii 58, 1904.
Thawing frozen service pipes by electricity. (F. A. McInnes) xviii 214, 1904.
Thawing frozen service pipes and distributing the cost. (Discussion) xxvi 159, 1912.
Thawing frozen services. (D. A. Heffernan) xxxii 133, 1918.
Thawing hydrants. (Committee report) xli 79, 1927.
Thawing frozen water pipes. (G. H. Finneran) xlv 44, 1931.
Thermit for relieving ice troubles. (H. T. Barnes) xl 312, 1926.
See HYDRANTS also MAINTENANCE.
INDUSTRIAL WASTES. See QUALITY also SEWAGE.
INFILTRATION GALLERIES. See GROUND WATER.
INTAKES.
Little Quittacas intake, New Bedford, Mass. (F. A. Barbour) xxxix 370, 1925.
Sebago Lake intake, Portland, Me. (H. U. Fuller, L. Metcalf and C. B. Mitchell) xxxix 394, 1925.
See also DAMS.
IRON REMOVAL. See TREATMENT.
JOINTS AND JOINTING MATERIALS. See PIPES (JOINTS).
LABORATORIES.
Design and equipment of water-works laboratories. (M. C. Whipple) xlii 339, 1928.
Hydraulic laboratory, Cornell University. (E. A. Fuertes) xiv 195, 1899-00.
Hydraulic laboratory of Mass. Institute of Technology. (D. Porter) xiii 81, 1893-94.
Small water works laboratory. (A. N. French) xxxii 64, 1918.
LEAKAGE, WASTE, AND BREAKS.
Allowable leakage from water mains. (E. C. Bradbury) xxviii 315, 1914.
Breaks in cement lined pipes. (J. C. Haskell) vii 171, 1892-93.
Break in water mains. (S. E. Killam) xxxi 268, 1917.
Breaks in water mains, service pipes and hydrants—a symposium. (F. A. McInnes, S. E. Killam, S. H. Taylor, F. A. Marston, C. W. Mowry and G. H. Finneran) xlv 23, 1931.
Control of water waste by house-to-house inspection. (G. Z. Smith) xxxv 322, 1921.
Detecting leaks in underground pipes. (D. A. Heffernan) xxxii 204, 1918.
Detecting water waste. (B. I. Cook) vii 22, 1892-93.
Detection and prevention of water waste, Marion, O. (E. H. Cowan) xviii 185, 1904.
Detection of leakage by Bell waterphone. 73, Trans. 1884.
Efficacy of inspection to reduce water waste. (Discussion) 30, Trans. 1883.
Efficacy of meters in water-waste prevention. (Discussion) 30, Trans. 1883.
Emergencies resulting from breaks in water mains. (Discussion) xlvi 138, 1932.
Experiences with broken pipes. (Committee report) xxii 368, 1908; xxiii 435, 1909; xxvii 160, 1913.
Joint leakage tests, Haverhill, Mass. (H. C. Crowell) xlvii 122, 1933.
Leakage detection. (Patrick Gear) xxviii 68, 1914.
Leakage from lead joints in cast-iron water pipe. (A. H. Smith) xxx 1, 1916.
Leakage from pipe joints. (F. A. Barbour) xxx 439, 1916.
Leaks and litigation. (G. H. Finneran) xli 201, 1927.
Locating leaks in water mains. (F. J. Hoxie) xxvii 307, 1913.
Location of a broken main. (G. A. Stacy) vii 222, 1892-93.
Location of leak in a submarine pipe line. (E. G. Hooper) xxix 536, 1915.
Municipal use and waste of water. (John Venner) xvii 268, 1903.
Peculiar leak in a main pipe adjacent to a gas pipe. (R. C. P. Coggeshall) xxi 487, 1907.
Plugging up leaks. (Hermann Behr) lxi 220, 1947.
Saving of water and conservation of coal. (G. A. Carpenter) xxxii 198, 1918.
Unaccounted for water, Norwood, Mass. (C. A. Bingham) xlvi 201, 1932.
Waste restriction, Boston, Mass. (F. A. McInnes) xxxv 34, 1921.
Water loss from pipes. (F. H. Crandall) xii 245, 1897-98.
Water waste. (Dexter Brackett) i Dec. 2, 1886-87; (Committee report) 27, Trans. 1883.
Water waste, Metropolitan water works, Boston, Mass. (Dexter Brackett) xviii 107, 1904.
Water waste prevention. (D. A. Heffernan) xlv 21, 1931.
Water waste prevention, New York City. (W. W. Brush) xxvii 407, 1913.
Water waste prevention surveys. (P. Lanham) xxxiii 287, 1919.
Water waste surveys, Lexington, Mass. (A. A. Ross) xlviii 72, 1934.
LEAD AND HEALTH. See HEALTH.
LEGAL, DAMAGES.
Act relating to the use of Little Quittacas Pond, New Bedford, Mass. i June 17, 1886-87.
Adjustment of diversion damages by storage compensation. (R. E. Horton) xxii 334, 1908.
Awards for water power diversion. (Committee report) xxiv 1, 1910.
Bathing in public water supply tributaries, Connecticut Supreme Court Decision. lii 116, 1938.
Can a water taxpayer's application for water be refused? (Discussion) i Sept. 32, 1886-87.
City's right to meter fire services. City of Lowell vs. Shaw Stocking Co. xxii 279, 1908.
City of Dayton, O., vs. City Railway Co. xvi 151, 1902.
Control of service pipes. (Discussion) ii Sept. 19, 1887-88.
Control of water supplies of New York State and laws relating thereto. (C. A. Holmquist) xli 261, 1927.
Compensating reservoirs and diversion of water. (C. M. Saville) xl 352, 1926.
Damages paid for diversions from the Ware and Swift Rivers for water supply of Boston Metro. Dist. (W. H. Sears) lxiv 195, 1950.
Health laws relating to public water supplies. (A. D. Weston) xxxviii 333, 1924.

Interstate water rights. (C. M. Saville) xli 340, 1927.
Law governing the taking of private property. (Philips Nichols) xxxviii 327, 1924.
Law of interstate waters and its application to the Delaware River. (Thaddeus Merriman) xlv 199, 1931.
Laws and regulations for the protection of public water supplies. (W. J. Scott) xl 425, 1926.
Laws governing water utilities. (D. E. Moulton) lviii 203, 1944.
Legal aspects of financial management of water-works in Massachusetts. (A. D. Weston) xliii 328, 1929.
Legislative Act—Vermont, authorizing of municipal corporations to organize and conduct a water dept. and issue bonds. (Committee report) lix 386, 1945.
Water rights. (R. A. Hale) xxi 248, 1907.
Damages by diversion of water power. (Clemens Herschel) xxi 241, 1907.
Damages to mill powers, Troy, N. Y. (W. C. Raymond) xiii 152, 1898-99.
Status of application for water service to a property upon the death of owner. (Discussion) xxv 473, 1911.
Responsibility for water quality. (E. S. Chase) liii 191, 1939.
Court decisions incident to purchase of Braintree Water Supply Co. (H. A. Symonds) xxxvi 426, 1922.
Diversion of interstate waters for domestic water supply, Connecticut vs. Massachusetts. (F. E. Winsor) xlv 267, 1931.
Legal aspects of water power development in Maine. (C. C. Babb) xxvi 190, 1912.
Legality of supplying water to premises extending into two adjoining towns. (Discussion) ix 197, 1894-95.
Legislation. (Committee report) lix 385, 1945; lx 425, 1946; lxi 360, 1947; lxii 300, 1948; lxiii 385, 1949; lxiv 381, 1950.
Legislation and court decisions for sanitary protection of water supplies. (A. L. Sawyer) xxxii 154, 1918.
Legislation and other activities relating to conservation. (Committee report) xxiii 131, 1909; xxv 135, 1911; xxviii 101, 1914.
Legislation for making water bills a lien upon property. (Discussion) xxvii 522, 1913.
Legislative matters in Massachusetts. (Committee report) xl 175, 1926.
Litigation, Newton, N. J. (L. L. Tribus) xxiii 145, 1909.
Loss of water power by diversion. (L. M. Hastings) vii 187, 1892-93.
Massachusetts law to protect inland waters. 1 March 6, 1886-87.
Massachusetts laws on financing municipal water works. (Committee report) xxxvii 105, 315, 1923.
Operation of the Massachusetts water lien law. xl 161, 1926.
Payment for relocation of water mains. (E. A. Merrithew) lii 90, 1938.
Principles governing riparian water rights and diversion suits. (C. F. Choate, Jr.) xxiv 187, 1910.
Public control over new streets in relation to extension of water mains. (Bertram Brewer) xxxiii 436, 1919.
Public utilities under the amended Federal wage-hour law. lxiv 192, 1950.
Public works and state boundaries. (Clemens Herschel) xli 331, 1927.
Real estate acquisitions for Metropolitan Boston's water supply in the Swift and Ware River watersheds. (J. A. Christenson) liv 194, 1940.
Real estate acquisitions for Metropolitan Boston's water supply. (J. A. Christenson) lix 132, 1945.
Real estate and damage settlements, Scituate Reservoir, Providence, R. I. (E. C. Craig) xl 503, 1926.
Massachusetts statute making water bills a lien on real estate. (Committee report) xxviii 91, 105, 1914.
Values of water powers and damages caused by diversion of water. (C. T. Main) xxi 214, 1907.

LINING PIPE. See PIPE AND PIPELINES (LINING).

MANAGEMENT, ORGANIZATION.
Activities of the Committee on water and sewage works. (E. L. Filby) lviii 1, 1944.
Activities of the State Sanitary Water Board, Maine. (J. E. Hale) lxi 64, 1947.
American and English water works practice. (J. T. Calvert) xlvi 229, 1932.
Annuities for public service employees. (J. F. Reny) lviii 236, 1944.
British water works practice. (John Bowman) liii 385, 1939.
British water works practice. (H. J. F. Gourley) l 345, 1936.
Casual observations of English water works practice. (E. S. Chase) lxiii 315, 1949.
Changing trends and their effect on water utilities. (A. E. Gorman) lviii 225, 1944.
Civil service and the water department. (J. C. Pelletier) xxiii 209, 355, 1909.
Classification of water works employees and salaries. (Committee report) lix 403, 1945.
Control of street openings. (Discussion) xxxviii 130, 1924.
Difficulties in water works management, Manchester, N. H. (C. K. Walker) xi 341, 1896-97.
Efficiency in water works management. (W. H. Richards) xxv 407, 1911.
Economic advantages of private ownership of water companies. (A. S. Dewing) xli 63, 1927.
Economy in water works management. (S. M. Allis) vj 161, 1891-92.
Engineering cooperation. (Committee report) xxix 591, 1915.
Engineers and engineering in the Mass. State Board of Health. (G. M. Fair) lix 32, 1945.
Extension of the water district idea in Maine. (H. D. Eaton) xxxi 196, 1917.
Extensions of water mains. (Committee report) xxv 212, 1911.
Fifty years in water works practice. (C. M. Saville) xlvi 33, 1932.
Group management of water companies. (R. J. Newsom) xlvii 337, 1933.
Highlights of private water company operation. (A. M. Symonds) lxii 229, 1948.
Instruction to employees at pumping stations and filter plants. (D. R. Gwinn) xxxiv 284, 1920.
Insurance problems of water works companies. (C. C. Goodrich) lxiii 45, 1949.
Labor troubles. (Discussion) xxxii 376, 1918.

Management of a municipally owned water works. (L. G. Carlton) xlvii 343, 1933.
Merging water departments with other municipal departments. (G. A. King) xxxvi 434, 612, 1923.
Municipal management of water supply system. (J. O. Hall) xvii 9, 338, 1903.
Municipal water works administration. (A. R. Hathaway) xxxvii 88, 1923.
New Hampshire's approach to post-war problems. (E. H. Hunter) lviii 258, 1944.
Operation of New York City's water supply system. (W. W. Brush) xlv 181, 1931.
Operating problems of a small water department. (H. R. Turner) xxxi 633, 1917.
Personal character in its relation to practical efficiency. (C. H. Eglee) xxix 214, 1915.
Place of public works construction in post-war planning. (W. F. Rockwell) lix 22, 1945.
Policy choices in employer-employee relations. (Royal Parkinson) lix 88, 1947.
Post-war activities. (Committee report) lvii 261, 407, 1943.
Post-war activities. (Committee report—final) lix 392, 1945.
Post-war planning in industrial New England. (Dudley Harmon) lviii 24, 1944.
Practical talk on water works matters. (G. H. Finneran) xxxiv 272, 1920.
Private and public water works. (Discussion) iv 17, 1889-90.
Problems in the management of municipal water works. (L. R.. Howson) liv 439, 1940.
Public utilities under the amended Federal Wage Hour Law. lxiv 192, 1950.
Public works after the war. (E. M. Herlihy) lviii 14, 1944.
Public works and business stabilization. (R. S. Meriam) xlviii 441, 1934.
Public works for economic stabilization. (W. T. Chevalier) xlviii 412, 1934.
Public works programing in relation to the post-emergency problem. (W. S. Parker) lvi 192, 1942.
Qualifications of operators. (W. J. Scott) ii 402, 1937.
Recent labor legislation and its effect on public utility operations. (J. H. Murcock, Jr.) lxiii 14, 1949.
Relation of metropolitan water works to member communities. (D. A. Heffernan) xlvi 24, 1932.
Reminiscences of a superintendent. (D. A. Heffernan) xlii 235, 1928.
Unemployment relief by water works activities, Leominster, Mass. (W. G. Classon) xlvi 217, 1932.
Unemployment relief. (Committee report) xlv 380, 1931.
Unemployed, relief undertaking and water works. (Discussion) xlvii 200, 1933.
Water and sewage works development. (Committee report) lix 105, 392, 1945.
Water distribution safety. (Committee report) lxii 314, 1948.
Water-works management. (Edwin Darling) ii Sept. 7, 1887-88.
Water-works practice abroad. (C. W. Sherman) xl 297, 1926.
Water works practice at Taunton, Mass. (A. C. King) xlviii 66, 1934.

MAINTENANCE

Construction and maintenance of water works. (C. W. Kingsley) iii 127, 1888-89.
Distribution and maintenance, Providence, R. I. (S. F. Nolan) xl 460, 1926.
Distribution system maintenance. (J. A. Sweeney) lii 318, 1938.
Economics of rehabilitation of 3-in. to 24-in. water mains. (A. B. Anderson) lxii 10, 1948.
Emergency gang in a water service. (G. H. Finneran) xxx 413, 1916.
Experiences in Hartford, Conn. (C. M. Saville) xxx 195, 1916.
Maintenance of water works equipment. (S. L. Rogers) liii 345, 1939.
Organic coatings in water works maintenance. (D. R. Meserve) lx 227, 1946.
Revitalizing old water systems. (K. H. Holmes) lxiv 107, 1950.
Some problems of winter operation. (A. K. Grimmer) liv 60, 1940.

MANGANESE REMOVAL. See **TREATMENT (IRON REMOVAL).**

MANHOLE FRAMES AND COVERS. See **SPECIFICATIONS.**

MATERIALS.

Developments of rubber in relation to water works practice. (E. A. Houser) lii 254, 1938.
Explosives, types and uses. (C. H. Blocher) liv 191, 1940.
Hi-Co, a new tar coating to maintain high coefficient of flow. (H. J. Billings) lv 54, 1941.
Testing and use of Portland and natural cements. (E. S. Larned) xxi 1, 1907.

MEASUREMET OF WATER. See **HYDRAULICS also METERS.**

METEOROLOGY. See **HYDROLOGY.**

METERS AND METERING.

Accuracy of meters. (John Thomson) viii 58, 1893-94.
Advisability of use of meters and their ownership by the city. (Discussion) vi 21, 1891-92.
Care and maintenance of meters. (J. C. Whitney) ix 106, 1894-95; (A. W. Cuddeback) xxvii 471, 1913; (H. W. Griswold) xliii 273, 1929.
Choosing a primary device for flow measurement. (L. K. Spink) lx 15, 1946.
Effects of meters on consumption. (G. I. Bailey) xv 351, 1900-01.
Experiences with water meters. (H. G. Holden) iii 154, 1888-89; (L. A. Taylor) vi 182, 1891-92.
Field tests of large meters. (Nelson Boardman) xlvii 129, 1933.
Installation and care of Venturi meters. (A. B. Coulters) xliii 281, 1929.
Luxuries of yesterday, necessities of today. (C. C. Behney) xxxviii 294, 1924.
Master meters. (H. W. Griswold) li 203, 1937.
Measurement of water, Metropolitan water works, Boston, Mass. xvii 107, 1904.
Meter registration. (A. N. French) xxi 33, 1907.
Meter setting and maintenance. (J. A. McMurray) xxxvii 44, 1923.
Metering, Boston, Mass. (J. A. McMurray) xxix 73, 1915.
Meters and water consumption. (W. S. Johnson) xxi 109, 1907; xxvi 40, 1912.
New developments in fluid meters. (Walter Parker) lii 248, 1938.
Results of better maintenance and sizing of water meters. (H. W. Griswold) liv 164, 1940.

Results of meterage:
Atlantic City, N. J. (W. C. Hawley) xii 111, 1897-98.
Boston, Mass., Metropolitan. (E. S. Killam) xxxi 495, 1917.
Brookline, Mass. (F. F. Forbes) xx 247, 1906.
Hartford, Conn. (E. M. Peck) xxii 282, 1908.
Larger cities of the United States. xv 351, 1900-01.
Results of universal metering at the Naugatuck Water Co. (W. H. Moody) lxii 202, 1948.
Round multiple and straight-reading registers. (Discussion) xxiv 370, 1910.
Selection of meters. (C. M. Saville) xxxii 329, 1918.
Service pipes and meters. (Discussion) xlii 251, 1928.
Size of meters for services. (S. H. MacKenzie) li 367, 1937.
Sizes of meters for services. (R. W. Esty) li 245, 1937.
Size of service pipes and meters. (W. B. Bushway) lviii 317, 1944.
Separate meters for each of two or more tenements in same house. (Discussion) xxvii 296, 1918.
Testing meters:
Best method. (Discussion) ii Sept. 93, 1887-88.
Boston, Mass. (L. F. Rice) iii 67, 120, 1888-89.
Curves of accuracy and friction loss. (F. B. Nelson) xxix 539, 1915.
Large meters. (R. E. Ferguson) xliii 382, 1929.
Lowell, Mass. (W. F. Sullivan) xix 264, 1905.
Six-inch. (F. C. Kimball) xvii 305, 1903.
Uniformity of methods. (John Thomson) x 78, 111, 1895-96
Venturi meter. (R. A. Robertson) vii 32, 1892-93.
Water meters: advisability of their use. (G. A. Roullier) v 56, 1890-91.
Water meters. (L. A. Taylor) i Sept. 57, 1886-87.
MICROSCOPIC ORGANISMS. See QUALITY also TREATMENT.
MILITARY SUPPLIES. See SUPPLY (MILITARY).
MISCELLANEOUS NOT RELATED TO WATER WORKS.
Atlantic intra-coastal waterways. (Edward Parrish) xxv 285, 1911.
Case for water witching. (L. W. Ryder) lxiii 232, 1949.
Community planning. (Flavel Shurtleff) lxi 231, 1947.
Experiences of a transportation officer in the E.T.O. (Richard Kimball) lx 21, 1946.
From peace to war, from war to victory, from victory to just judgment. (W. T. Sedgwick) xxxii 189, 1918.
Gypsy moth control with D.D.T. (J. M. Corliss) lxii 191, 1948.
Hill, New Hampshire, a planned town. (J. L. Hayden) lvi 202, 1942.
New England regional planning commission. (V. M. Cutter) xlix 72, 1935.
Parks, Rochester, N. Y. (C. C. Laney) xxiv 485, 1910.
Placing a bridge in position. (C. A.. Allen) iii 197, 1888-89.
Placing the walking beams in the steamer Puritan. (W. M. Hawes) iii 163, 1888-89.
Precision. (W. B. Sherman) xvii 52, 1903.
Quartermaster terminal, Boston, Mass. (C. R. Gow) xxxii 362, 1918.
Squantum destroyer plant. (T. C. Atwood) xxxiii 1, 1919.
Water (Poem). (Roberta Whitehead) lv 384, 1941.
Water in some of its higher relations. (D. N. Beach) iii 133, 1888-89.
Way out. (E. S. Chase) xlvii 207, 1933.
MONEL METAL. See CORROSION.
MOTORS. See PUMPS also WATERPOWER.
OZONE. See TREATMENT (DISINFECTION.
PAINTING STANDPIPES. See TANKS also SPECIFICATIONS.
PERSONNEL ADMINISTRATION. See MANAGEMENT.
PIPE AND PIPE LINES.
GENERAL:
Accident on tile conduit. (W. H. Richards) iii 164, 1888-89.
Air in gravity mains. (J. W. Ledoux) xxxv 31, 1921.
Depth of laying pipes. (Committee report) xxii 368, 1908; xxiii 435, 1909; xxvii 160, 1913.
Design of pipe lines. (K. R. Kennison) xlvii 27, 1933.
Economy in pipe lines for small water works. (E. D. Eldredge) xxxiv 91, 1920.
Experiments with tube-loy pipe. (R. S. Weston) lvi 174, 1942.
Laying mains:
10 inch pipe, Leicester, Mass.. (F. L. Fuller) iv 190, 1889-90.
20 inch pipe, New London, Conn. (W. H. Richards) iv 178, 1889-90.
30 inch supply main, Lowell, Mass. (S. P. Griffin) vi 186, 1891-92.
Laying water pipes in congested streets, New York, N. Y. (Max Blatt) xxix 513, 1915.
Mains. (Discussion) xxxii 46, 1918.
Minimum size of mains allowable. (Discussion) vi 18, 1891-92.
Moving a conduit in 100 ft. sections. (W. E. Davis) v 125, 1890-91.
Pipes and pipe laying, Metropolitan Water Works, Boston, Mass. (C. M. Saville) xvii 203, 1903.
Pipes for distribution systems, present practice and trends. (H. C. Dresser) lviii 353, 1944.
Protection of water pipes and appurtenances. (Discussion) xxxix 174, 1926.
Raising or lowering large water pipes. (Dexter Brackett) iii 198, 1888-89.
Raising pipes in the trench. (J. E. Beals) xx 244, 1906.
Siphon operation on main supply pipe. (W. R. Brann and C. D. Sherman) xxxv 36, 1921.
Sixteen-inch direct river pipe and its effect upon the Taunton, Mass., supply. (G. F. Chace) vi 179, 1891-92.
Size of mains and services. (S. H. MacKenzie) li 108, 1937.
Street mains: relative merits of different kinds. (F. E. Hall) 107, Trans. 1885.
Thickness of large pipe lines. (Allen Hasen) xxv 29, 1911.
Thickness of main pipes. (Discussion) iv 179, 1889-90.

Water pipes, Metropolitan Water Works, Boston, Mass. (Dexter Brackett) xiii 325, 1898-99.
Water supply mains. (J. W. Ledoux) xxxv 354, 1921.
ASBESTOS-CEMENT:
Experience with transite pipe. (A. B. Rich) li 289, 1937.
Introduction to transite pipe. (H. L. Brigham) li 285, 1937.
Observations on water samples from cement-asbestos pipe systems in Vermont. (E. L. Tracy) lxiv 164, 1950.
Transite for wells and screens. (W. J. Lumbert) li 310, 1937.
Transite pipe. (G. W. Blakeley) li 317, 1937.
Underwriters tests of transite pipe. (C. W. Sherman) li 282, 1937.
CAST IRON AND SPECIALS:
Average service life of 6 inch C.I. water mains in Brooklyn, N. Y. (A. V. Rugles) lvi 361, 1942.
Bending 10-inch cast-iron pipe. (C. W. Sherman) xxvii 27, 1913.
Casting pipe with the bell end down. (Discussion) vii 18, 1892-93.
Cast-iron pipe publicity bureau. (T. F. Wolfe) xl 345, 1926.
Cast-iron pipe. (Committee report) 1 Sept. 12, 1886-87.
Engineering aspects of cast-iron pipe. (R. Moldenke) xxxvii 1, 1923.
Historical notes on cast-iron pipe, Nashua, N. H. (D. C. Calderwood) xlvii 124, 1933.
History of cast iron pipe. (W. R. Conard) lii 166, 1939.
Improvements in centrifugal casting process. (H. W. Stuart and S. E. Linderman) xlviii 423, 1934.
Life of cast iron pipe. (C. Cavallier) xviii 218, 1904.
Making cast iron pipe. (Jesse Garrett) xi 27, 1896-97.
Manufacture and inspection of cast iron pipe. (W. R. Conard) xxxv 205, 1921.
Manufacture and use of small cast iron pipe. (J. R. McWane) xliv 495, 1930.
Methods of cutting cast iron pipe. (S. L. Rogers) lxii 238, 1948.
Pipe castings. (Discussion) viii 78, 1893-94.
Sandspun pipe. (C. R. Wood) xxxix 85, 1925.
Thickness of cast iron pipe. (N. H. Crafts) iii 175, 1888-89.
Turned joint on cast iron pipe, Yarmouth, N. S. (F. C. Coffin) xv 38, 1900-01.
Two inch cast iron pressure pipe. (C. D. Cox) liv 294, 1940.
"Universal" cast iron pipe. (Discussion) xxi 50, 1907; (J. H. Walsh) xxxi 490, 1917.
Use and weight of special castings. (Discussion) iii 8, 1888-89.
Weight of cast iron pipe. (A. F. Noyes) 28, 154, Trans. 1885.
CONCRETE:
Cement pipe. (P. F. Crilly) v 50, 1890-91.
Concrete pipe for water mains. (R. W. Mitchell) xliii 18, 1929.
Lock-joint pipe line, New Bedford, Mass. (F. F. Longley) xlix 212, 1935.
Reinforced concrete pipe. (G. C. Bartram) xxxiv 312, 1920.
Reinforced concrete pipe for water supply lines. (W. G. Chase) xxxvi 102, 1922.
Reinforced concrete pipe for water lines under pressure. (F. F. Longley) xxxviii 257, 1924.
PRESTRESSED:
Prestressed reinforced concrete pipe. (F. F. Longley) lix 335, 1945.
Production of 84 inch prestressed concrete pressure pipe for city of Montreal. (R. M. Doull) lxiii 29, 1949.
SUBMARINE:
Brook crossing and bridge crossing. (H. W. Griswold) xlvii 22, 1933.
Crossing a stream with a main pipe. (E. H. Gowing) v 135, 1890-91.
Laying a 16-in. main across a rocky mill stream and over a dam. (G. F. Chace) ix 103, 1894-95.
Laying a 24-in. main under the Nashua River, Nashua, N. H. (H. G. Holden) xii 254, 1897-98.
Laying siphon under Broad Canal, Cambridge, Mass. (J. L. Harrington) vii 90, 1892-93.
Laying submarine pipe in Portland Harbor in winter. (H. U. Fuller) lvi 65, 1942.
Placing a 10 in. high-service pipe across a river. (F. W. Gow) xii 195, 1897-98.
Sub-aqueous pipe and electric cable way, Gloucester, Mass. (H. W. Spooner) xxii 261, 1908.
Submarine pipe line, Portland, Me., and Great Diamond Island. (H. U. Fuller) xliv 479, 1930.
Submarine pipe line, Portland and So. Portland, Me. (H. U. Fuller) xxxvii 298, 1923.
Submarine pipe lines in deep water at Portland, Me. (J. R. Gardner) lix 148, 1945.
River crossings. (C. T. Heeney) liv 65, 1940.
Submerged 54-inch pipe, Skaneateles Lake, Syracuse, N. Y. (W. R. Hill) viii 40, 1893-94.
Submerged river crossing, Augusta, Me. (S. S. Anthony) lii 58, 1938.
Transite pipe river crossing, Scituate, Mass. (F. A. Marston) li 299, 1937.
STEEL AND WROUGHT IRON:
Flow tests on 30-in. steel pipe lined with bitumastic enamel in 1932. (J. D. Carpenter and G. M. Roads) lvi, 8, 1942.
Hole bored through wrought-iron sleeve. (Phineas Ball) iii 258, 1888-89.
Jackets for protection of steel pipes in Catskill aqueduct, New York, N. Y. (A. D. Flinn) xxv 345, 1911.
Laying lined and wrapped steel pipe, Needham, Mass. (R. G. Oakman) liii 271, 1939.
Replacing castings and forgings by steel elements cut to shape by automatic shape-cutting machines. (Adolf Krebs) xlii 36, 1928.
Repairs on a wrought iron pipe main. (J. A. Tilden) iii 202, 1888-89.
Steel for water mains. (L. M. Hastings) xiii 314, 1898-99.
Steel pipe for water mains. (E. H. Thwaits) lii 93, 1938.
Steel pipes for water works. (Emil Kuichling) xxiv 514, 1910.
Wrought iron. (James Aston) xlv 188, 1931.

CLEANING AND DISINFECTING:
Care of mains in relation to the quality of the water supply. (G. F. Chace) v 131, 1890-91.
Chlorination of pipe line, New Bedford, Mass. (E. J. Sullivan) xlix 221, 1935.
Cleaning water mains. (Discussion) xxiv 373, 1910.
Hartford, Conn. (with specifications). (C. M. Saville) xxvii 489, 1913.
St. John, N. B. (William Murdock) xiii 147, 333, 1898-99.
Disinfection of Wanaque aqueduct. (A. E. Griffin) xlv 1, 1931.
Disinfection of water mains. (Committee report) xliv 565, 1930.
Disinfection of water mains. (Discussion) xlvii 195, 1933.
Flushing street mains. (J. H. Brown) 70, Trans. 1885.
Pipe cleaning and lining, Buenos Aires. (Bruce Harkness) liii 284, 1939.
Reconditioning large water mains. (H. S. Jones) liii 293, 1939.
Results of pipe cleaning. (B. B. Hodgman) xxxix 171, 1925.
Water main cleaning. (A. T. Clark) xlvii 184, 1933; (appendix) xlvii 296, 1933.
Water main disinfection. (Committee report) l 445, 1936.
JOINTS:
Calking joints with an air compressor. (D. J. Higgins) xxviii 286, 1914.
Cast iron bell and spigot pipe joints, Boston, Mass. (Clarence Goldsmith) xxvjii 113, 1914.
Cement for water pipe joints. (William Wheeler) xxxvii 62, 1923.
Depth of lead joints. (Discussion) 94, Trans. 1885; v 25, 1890-91.
Disjointing pipe without burning joints. (Discussion) 102, Trans. 1885.
Efficiency of pipe jointing compounds compared with lead. (F. O. Stevens) xxxiv 102, 1920.
Insulation of joints in pipe lines. (W. R. Conard) xxvii 228, 1913.
Leadite joints. (H. A. Symonds) xxix 557, 1915; W. C. Hawley) xxix 563, 1915.
Matheson-joint steel water mains. (F. N. Speller) xxxii 58, 1918.
Metallurgy of welding wire. (C. A. McCune) xlii 33, 1928.
Naphtha lamp for melting joints. (Discussion) 103, Trans. 1387.
Oxy-acetylene process in the piping field. (R. W. Boggs) xliii 44, 1928.
Pipe jointing compounds. (Discussion) xxxvi 111, 309, 1922; (G. H. Finneran) xxxvii 84, 1923.
Pipe line welding by oxy-acetylene gas. (LeRoy Edwards) xlii 3, 1928.
Pipe welding. (D. H. Deyoe) xlii 25, 1928.
Requirements of a pipe joint for water lines. (Arthur Hicks) lxiv 291, 1950.
Rubber pipe joints. (R. S. Weston) xxii 310, 1908.
Tapping band on cast-iron pipe for large connections. (L. A. Taylor) ix 229, 1894-95.
Thermit pipe welding. (R. L. Browne) xlii 21, 1928.
Use of couplings. (R. S. Scott) l 399, 1936.
Welding. (Discussion) xlii 42, 1928.
Wooden joints in cast-iron mains. (William Murdock) xv 34, 1900-01.
Wooden plug used to stop the hole drilled by Smith tapping machine. (Discussion) xxiii 451, 1909.
LINING AND COATING:
Cement lined cast-iron pipe. (C. W. Sherman) xl 98, 1926.
Cement lined pipe. (Committee report) xlii 492, 1928.
Cement lining for cast iron pipe. (T. F. Wolfe) lx 389, 1946.
Cement-mortar lining for cast iron pipe and fittings, proposed standards. xlvi 224, 1932.
Construction of cement lined pipe. (F. W. Gow) 113, Trans. 1885.
Difficulty of obtaining pipe with a good coating. (Discussion) x 143, 1895-96.
Disappearance of the coating from cast iron pipe while stored in the yard. (S. E. Killam) xxxv 367, 1921.
Lined and wrapped steel pipe, Augusta, Me. (S. S. Anthony) liii 274, 1939.
Linings and covering for water pipes. (Benjamin Talbot) xl 446, 1926.
Linings for cast iron pipe. (T. F. Wolfe) l 414, 1936.
Pipe coatings. (Discussion) viii 78, 1893-94.
Pipe linings and friction coefficients. (E. T. Killam) xlvii 283, 1933.
Repair of inside pipe coating. (Discussion) xxxiv 55, 1920.
Spun bituminous pipe coating in Great Britain. (J. Mitchell) li 390, 1937.
Spun bituminous pipe coating in the United States. (G. E. Boyd) li 393, 1937.
Tars. (S. R. Church) xxxvi 571, 1922.
Water mains and cement lined pipe, Danvers, Mass. (R. W. Esty) xlv 54, 1931.
Wrought iron, cement lined water pipe. (Leonard Metcalf) xxiii 1, 1909.
SERVICE PIPES:
Brass pipe for services. (Discussion) xxxvii 428, 1923.
Cast iron service pipe. (J. R. McWane) xxxviii 79, 1924.
Cement-lined service pipes. (F. F. Forbes) xv 48, 1900-01.
Connecting lead services. (W. F. Codd) ix 187, 1894-95.
Copper and brass water services. (W. J. Schneider) xliii 148, 1929.
Costs of lead substitutes for pipe joints. (V. F. West) xxxviii 75, 1923.
Curb box. (H. G. Holden) 1 Sept. 41, 1886-87.
Cutting lined pipe. (Discussion) xlviii 23, 1934.
Economy of service pipe installation. (R. J. Newsom) xxxvi 79, 1922.
Force pump for cleaning service pipes. (Discussion) xxviii 70, 1914.
Life of tarred service pipes. (F. L. Fuller) vii 221, 1892-93.
Magnetic dipping needle for locating service and gate boxes. (E. D. Eldredge) xxviii 294, 1914.
Merits of lead service pipes. (Discussion) vi 22, 1891-92; xii 51, 1897-98.
Screw cock injured by sand blast. (J. L. Harrington) iii 166, 1888-89.
Service boxes of Montreal, Que. (T. W. Lesage) xvii 284, 1903.
Service gate boxes. (G. A. Stacy) xi 339, 1896-97; xii 36, 1897-98.
Service pipe. (Committee report) xxxi 323, 1917.

Service pipe. (W. H. Richards) 40, Trans. 1884.
Service pipe defects and their remedy. (G. F. Chace) xii 41, 1897-98.
Service pipes and meters. (Discussion) xlii 251, 1928.
Service pipes and plumbing appliances. (D. A. Heffernan) xxxvii 45, 1923.
Size of service pipes and meters. (W. B. Bushway) lviii 317, 1944.
Installation of lead service pipe. (R. L. Ziegfeld) liv 1, 1940.
Joint use of service trenches. (L. A. Goodale) xlix 372, 1935.
Lead connections for iron service pipe. (H. G. Holden) vi 81, 1891-92.
Rigid vs. flexible service connections. (A. C. King) li 111, 1937.
Water service installation in Newton. (M. J. Herlihy) xlviii 59, 1934.
Wiped and cup joints. (Discussion) i Sept. 71, 1886-87.
WOOD:
Early log pipe, Boston, Mass. (C. W. Sherman) xli 216, 1927.
Stave pipe—its economic design and use. (A. L. Adams) xiii 247, 1898-99.
Wood pipe in New Hampshire. (A. W. Dudley) xxx 318, 1916.
Wood-stave conduit, Atlantic City, N. J. (Kenneth Allen) xviii 375, 1904; (C. J. Meyers) xviii 387, 1904.
Wyckoff water pipe. (G. L. Wells) xiii 288, 1898-99.
PIPE LAYING. See EXCAVATION, PIPES (GENERAL), and PIPES (JOINTS).
PIPE TAPPING. See PIPES (JOINTS).
PITOMETERS AND PITÓT TUBES. See HYDRAULICS.
PLUMBING:
Advantages of modern plumbing over old-fashioned pump and well. (J. O. Hall) xv 525, 1900-01.
Backflow in water supply systems. (R. H. Zinker) liii 458, 1939.
Collapse of hot water boilers. (W. F. Sullivan) xlix 200, 1935.
Explosion of hot water boiler, Belmont, Mass. (E. J. Looney) xxxiv 200, 1920.
Flush valve. (G. M. Fair) xxxv 137, 1921.
Flushometer valves. (Discussion) xliii 155, 1929; xxxvi 467, 1922.
House inspection of fixtures. (Discussion) vi 34, 1891-92.
National plumbing laboratory. (M. W. Cowles) lv 46, 1941.
Necessity of tanks for supplying water closets and hot-water boilers. (W. R. Billings) 51, Trans. 1885.
Need of uniformity in plumbing regulations. (G. C. Whipple) xxxv 117, 1921.
New plumbing regulations, Connecticut. (L. K. Sherman) lii 351, 1938.
Plumbers and water works superintendents. (G. W. Thompson) xxxv 107, 1921.
Plumbing fixtures and back-siphonage. (L. K. Sherman) li 266, 1937.
Plumbing systems and cross-connections. (M. W. Cowles) li 261, 1937.
Range-boiler explosions. (W. A. Bradford) xxxvii 406, 1923.
Regulating water piping and fixtures. (Committee report) li 259, 1937; li 476, 1937.
Regulation of water pipes within buildings. (S. H. Taylor) l 129, 1936.
Responsibility for water piping on consumer premises. (W. J. Scott) lix 60, 1945.
Service pipes and plumbing appliances. (D. A. Heffernan) xxxvii 47, 1923.
Should plumbers be licensed? (Discussion) i Sept. 26, 1886-87.
Survey of interior water piping in Connecticut. (D. C. Wiggin) lix 71, 1945.
Tanks for service in high buildings. (H. E. Halpin) li 273, 1937.
Vibration in house services. (Discussion) xxiv 365, 1910.
Water distribution in connection with plumbing. (D. A. Heffernan) xxv 123, 1921.
POLLUTION. See QUALITY.
PRECIPITATION. See HYDROLOGY.
PRESSURE REGULATORS. See GATES, VALVES.
PRIVATE WATER WORKS. See MANAGEMENT also FINANCING.
PROTECTION OF WATER SUPPLY. See HEALTH, QUALITY, CROSS-CONNECTIONS and LEGAL.
PUBLIC HEALTH. See HEALTH.
PUBLIC RELATIONS.
Cooperation of water works operators with the public and employees. (F. T. Kemble) xxxvi 363, 1922.
Pictures and public relations at Westfield, Mass. (H. H. Angell) liv 256, 1940.
Promoting the interest of the taxpayer in water supply. (C. Schwarzler) liv 428, 1940.
Selling from the manufacturers and purchasers viewpoint. (W. P. Mosteller) xxxviii 287, 1924.
Selling your water works. (G. L. Watson) lvi 117, 1948.
Soft answer to complaints. (L. H. Gardner) v 129, 1890-91.
Some phases of public relations. (H. L. Brigham) liv 85, 1940.
Suggestions of water works officials of benefit to the consumer. (D. A. Heffernan) xxxiv 183, 1920.
Telling the public about water. (M. E. Flentje) lxiv 302, 1950.
PUMPING.
GENERAL:
Booster pump for a gravity water supply. (G. F. Merrill) xxxvii 190, 1923.
Changes in power for pumping, Newport, R. I. (Harold Watson) xliii 410, 1929.
Economics of pumping equipment. (D. D. Eames) lii 214, 1938.
Engine foundation, Lynn, Mass. (J. C. Haskell) v 163, 1890-91.
Engines for small water works. (H. A. Symonds) xxxiii 153, 1919.
Fuel:
Bog fuel. (Edward Atkinson) xvii 180, 1903; xviii 414, 1904.
Calorific value. (G. H. Barrus) x 48, 1895-96; (H. J. Williams) xix 90, 1905.
Situation in New England. (I. N. Hollis) xxxii 217, 1918; (C. T. Main) xxxii 231, 1918.
Handling air in tube-well pumping plant. (D. N. Tower) xii 189, 1897-98.
New priming systems for use with centrifugal pumps. (F. S. Broadhurst) liv 89, 1940.
One hundred years of pumping machinery. (S. W. Kitson) liv 103, 1940.
Operation of town water works pumps. (C. E. Greene) xlv 168, 1931.

Power and pumping facilities, Manchester, N. H. (P. A. Shaw) liii 352, 1939.
Pumping engines. (A. J. Loretz) xi 227, 1896-97.
Pumping equipment, Manchester, N. H. (J. H. Mendell) xxxii 169, 1918.
Pumping equipment for station economy. (F. A. Mazzur) xxxvii 242, 1923.
Pumping station design and operation. (R. J. Newsom) xxxv 46, 1921.
Pumping station equipment. (R. P. Hall) lviii 348, 1944.
Pumping water, historical review. (W. H. Sears) xlix 119, 1935.
Pumps for small water works. (C. W. Fulton) xxxiv 1, 1920.
Remodeled pumping station, Nashua, N. H. (W. F. Sullivan) l 283, 1936.
Safe ratio of pumping capacity to maximum consumption. (W. B. Sherman) iii 90, 1888-89; (Discussion) iii 104, 1888-89.
Standby emergency pumping equipment. (C. E. Greene) liii 178, 1939.
ELECTRICAL:
Dangerous reduction of insulation resistance in high-pressure fire service motors due to moisture. (W. W. Brush) xxxiii 337, 1919.
Electrical pumping plant. (C. A. Hague) x 184, 1895-96.
Electric pumping:
Concord, N. H. (P. R. Sanders) xxxvi 517, 1922.
Montreal Water and Power Co. (F. H. Pitcher) xvii 349, 1903.
Schenectady, N. Y. (G. S. Hook) xx 89, 1906.
Waterville, Me., Kennebec Water District. (A. L. Shaw) xxxix 32, 1925.
Log book for electrically-driven pumping unit, New Bedford, Mass. (R. C. P. Coggeshall) xxxii 173, 1918.
Purchased power for pumping stations. (W. H. Colburn) lv 182, 1941.
McTavish pumping station, Montreal, Que. (C. J. DesBaillets) xliii 32, 1929.
Reliability features of an electrically-operated pumping station. (R. C. Dennet and G. L. Swan) xli 268, 1927.
Woodlawn pumping station, Western New York Water Co., Buffalo, N. Y. (H. F. Huy) xliii 387, 1929.
INTERNAL COMBUSTION:
Centrifugal pumps for Diesel-engine drive. (Max Spillmann) xxxvii 172, 1923.
Compressed air. (J. H. Shedd) xix 1, 19, 1905.
Diesel drive for water works pumping stations. (J. W. Reynolds) lv 195, 1941.
Diesel engine and displacement pumps. (R. D. Hall) xxxvii 159, 1923; (H. M. Chase) xxxvii 163, 1923.
Diesel engine and its overall economy. (B. C. Jahnke) xxxix 105, 1925.
Diesel engine for pumping stations. (Elliott Earl) xlvii 61, 1933.
Diesel engine for water works service. (C. E. Lucke) xxxvii 145, 1923.
Diesel engine in a modern forge. (J. P. Harbeson, Jr.) xxxix 138, 1925.
Diesel engine in a pumping plant. (L. C. S. Smith) xxxix 135, 1925.
Diesel engine operation, Needham, Mass. (R. G. Oakman) liii 152, 1939.
Diesel engine pumping equipment. (A. D. Couch) xliv 458, 1930.
Diesel pumping plant, Milford, Mass. (M. H. Goff) lii 225, 1938.
Diesel pumping unit for Manchester water works. (C. L. Ahlgren) lxiii 57, 1949.
Gas, gasoline and oil engines for pumping machinery. (F. C. Coffin) xiii 206, 1898-99.
Gas producer pumping plants, Manchester, Mass. (R. C. Allen) xxv 1, 1911; xlii 56, 1929.
High service motor, Burlington, Vt. (F. H. Parker) ii Sept. 63, 1887-88.
Hydraulic pumping machinery. (J. T. Fanning) i Sept. 34, 1886-87.
Internal-combustion engines in water works and sewage plants. (A. M. Boehm) lx 27, 1946.
Modern Diesel practice for water works plants. (D. L. Gallagher) lxiii 105, 1949.
Producer gas plant, Hingham, Mass. (H. L. Thomas) xxii 1, 247, 1908.
Pumping without attendance using automatic oil engines. (S. A. Agnew) xx 330, 1906.
Steam vs. oil. (R. D. Hall) xxxvii 182, 1923.
STEAM.
Compound and triple expansion engines for small water works. (J. M. Betton) xiii 218, 1898-99.
Direct pumping method, Taunton, Mass. (G. F. Chace) vi 67, 1891-92; (G. A. King) xix 21, 1905.
Distribution pumping stations, Metropolitan Water Works, Boston, Mass. (A. O. Doane) xli 183, 1927.
Duties of pumping engines and fuel consumed. (Diagram) 24, Trans. 1882.
Economy in use of coal. (I. N. Hollis) xvii 32, 1903.
Economy of pumping engines. (G. H. Barrus) xiii 163, 1898-99; (F. W. Dean) xviii 25, 1904.
High and low duty pumping engines. (J. E. Smith) xiv 163, 1899-1900.
How to obtain the best results in small pumping stations. (H. F. Gibbs) xvi 167, 1902.
Improvements in pumping engines. (F. F. Forbes) xiii 157, 1898-99.
Metropolitan water works pumping machinery, Boston, Mass. (W. J. Sando) xv 299, 1900-01.
Needham street boiler plant. (David Eames) xlviii 102, 1934.
Pumping engine practice of the Edward P. Allis Co. (I. H. Reynolds) xiii 172, 1898-99.
Pumping engines. (F. W. Dean) viii 85, 1893-94; (E. D. Leavitt) ix 163, 1894-95.
Pumping station practice. (F. W. Dean) xlii 109, 1928.
Pumping stations, Providence, R. I. (J. A. McKenna) xl 466, 1926.
Pumping without an air chamber. (G. A. Stacy) xx 379, 1906.
Purchase of coal on an efficiency basis. (A. O. Doane) xxiv 277, 1910.
Saving of water and conservation of coal. (G. A. Carpenter) xxxii 198, 1918.
Slip tests as an aid to efficiency. (H. T. Havill) xxix 511, 1915.
Small pumping engines. (Discussion) xvi 174, 1902.
Snow pumping engine, Indianapolis, Ind. (W. F. M. Goss) xiii 49, 1898-99.

Steam boilers. (F. W. Dean) xxxvi 115, 1922.
Steam pumping engines. (A. O. Doane) xxxii 121, 1918.
Steel forgings for pumping engines. (H. F. J. Porter) xii 120, 1897-98.
Suction booster for centrifugal pumps. (F. S. Broadhurst) xxxvii 119, 1924.
Superheated steam in pumping engines. (E. H. Foster) xix 76, 1905.
Test of pumping engine, Waltham, Mass. (F. W. Dean and C. T. Main) xiv 171, 1899-1900.
Test of the unaflow pumping engine. (D. A. DeCrow) xxxiii 535, 191; xxxiv 195, 1920.
Thirty-five year old steam pumps. (F. O. Stevens) xxxvii 12, 1923.
Trial of 30-m.g.d. pumping engine, Metropolitan Water Works, Boston, Mass. (W. J. Sando) xv 232, 1900-01.
Waste heat engines. (E. F. Miller) xvii 44, 1903.
Worthington pumping machinery. (C. C. Worthington) xiii 229, 1898-99.

PURIFICATION. See **TREATMENT AND PURIFICATION.**

QUALITY.

GENERAL:
Boating and fishing in ponds and reservoirs used as sources of water supply. (X. H. Goodnough) xxxiv 151, 1920.
Character of Quabbin reservoir water during reservoir filling. (C. H. Reed) lxi 181, 1947.
Control of waters by state health authorities:
Massachusetts. (H. F. Mills) i March 6, 1886-87.
New York. (H. D. Pease) xxiii 90, 1909; (Theodore Horton) xxxiii 545, 1919; (C. A. Holmquist) xli 261, 1927.
Dangers to the sanitary quality of public water supplies. (E. S. Chase) xxxvii 16, 1923.
Developments in water quality standards. (Committee report) lix 394, 1945.
Drinking water standards, 1946 edition U. S. Public Health Service. lx 83, 1946.
Effect of pipes of different metals upon the quality of water supplies. (H. W. Clark) xli 31, 1927.
Enforcement with other beverages. (J. F. Jackson) xliii 402, 1929.
Eternal vigilance, the price of good water. (G. F. Chace) ix 147, 1894-95.
How to secure pure water from a surface water supply. (J. C. Haskell) xi 137, 1896-97.
Improving water quality by cleaning reservoirs and draining swamps. (M. S. Wellington) lxiv 179, 1950.
Industrial water requirements. (H. J. Skinner) lii 403, 1938.
Public health service drinking water standards and manual of recommended water sanitation practice. lviii 112, 1944.
Quality of impounded water supplies. (H. P. Eddy) xlvi 396, 1932.
Quality of surface water supplies of Massachusetts. (J. C. Haskell) xiii 79, 1898-99.
Quality of water, Newton, Mass. (E. H. Rogers) xxxvii 312, 1923.
Quality of waters of the Great Lakes. (R. B. Dole) xxiii 254, 1909.
Quality tolerances of water for industrial uses. (Committee report) liv 261, 1940; lxiv 412, 1950.
Rating quality of water supplies, Mass. (G. C. Whipple) xxxvi 40, 1922.
Review of 19th annual report on water examination, London Metropolitan Water Board. (M. C. Whipple) xl 33, 1926.
Revision of U. S. P. H. S. standards of water quality. (Committee report) lvi 527, 1942.
Results of systematic examination of public water supplies. (X. H. Goodnough) xiv 65, 1899-1900.
Sanitary condition of water supply of Burlington, Vt. (W. T. Sedgwick) x 167, 1895-96.
Sanitary inspection Metropolitan Water Works, Boston, Mass. (W. W. Locke) xv 483, 1898-99.
Sanitary protection of public water supplies. (Allen Hazen) xxxv 297, 1921.
Sanitary scoring of water supplies. (E. S. Chase) xxxix 229, 1925; (Committee report) xl 416, 1926; xli 316, 1927.
Sanitation and purification of New York City's water supply. (F. E. Hale) lv 62, 1941.
Sanitation manual for public ground water supplies. (U. S. Public Health Service) lix 183, 1945.
Scoring of surface water supplies. (A. D. Weston) xlix 82, 1935.
Surface water for drinking purposes. (W. T. Sedgwick) v 33, 1890-91.
Watching the weather in safeguarding public water supplies. (A. E. Gorman) xliii 377, 1929.
Water supply sanitation in New Hampshire. (C. D. Howard) xxxi 237, 1917; (C. L. Pool) xxxviii 122, 1924.
Water supply sanitation in the 19th century. (W. T. Sedgwick) xv 315, 1900-01.
Water supply sanitation in the 19th and 20th century. (W. T. Sedgwick) xxx 183, 1916.
Purification by freezing. (T. M. Drown) viii 46, 1893-94.
Quality of Vermont public water supplies. (C. P. Moat) xxxvii 291, 1923; xv 514, 1900-01.
Water and life. (L. J. Henderson) xxviii 1, 1914.

AQUATIC GROWTHS:
Algae growth in reservoirs and ponds. (F. F. Forbes) iv 196, 1889-90.
Algal environment in relation to fish. (A. S. Kennedy) lxii 196, 1948.
Anaeboena in Kenoza Lake, Haverhill, Mass. (E. S. Chase) lxi 128, 1947.
Asterionella. (J. C. Whipple and D. D. Jackson) xiv 1, 1899-1900.
Chara fragilis in a reservoir water supply. (F. F. Forbes) x 252, 1895-96.
Chlamydomonas in Spot Pond. (F. S. Hollis and H. N. Parker) xiv 26, 1899-1900.
Cristatella in storage reservoir, Henderson, N. C. (R. S. Weston) xiii 20, 1898-99.
Growth of organisms in water pipes. (G. C. Whipple) xii 1, 1897-98.
Leptomitus in drinking water. (R. C. Sweetser) xxvii 282, 1918.
Light and the growth of diatoms. (G. C. Whipple) xi 1, 1896-97.
Odor and taste imparted to water by some algae and infusoria. (F. F. Forbes) vi 90, 1891-92.

Organisms which cause unpleasant odors and tastes in water supplies. (W. T. Sedgwick) xiv 54, 1899-1900.
Period of storage and microörganisms in reservoirs. (R. S. Weston) xxxix 225, 1925.
Raphidomonas. (G. C. Whipple) xi 348, 1896-97.
Temperature of surface water and growth of microorganisms. (G. C. Whipple) ix 202, 1894-95.
BACTERIOLOGICAL:
Bacteriological detection of health hazards in water supplies. (W. L. Mallmann) lv 363, 1941.
Bacteriological field studies of water distribution systems. (W. J. Scott) lv 83, 1941.
Comparison of Lactose Broth and Brilliant-Green Bile at Cambridge, Mass. (F. E. Smith) liv 16, 1940.
False presumptive tests for water treated with chlorine-ammonia. (C. K. Ewing and J. E. Fuller) lix 244, 1945.
Sanitary significance of coliform bacteria in water. (C. A. Stuart) lv 355, 1941.
Viability of bacteria in the presence of phosphates. (J. A. McCarthy and W. E. Casidy) lvii 287, 1943.
CHEMICAL AND PHYSICAL:
Color and other phenomena of water from an unstripped reservoir in New England. (C. M. Saville) xxxix 145, 1925.
Color of water tributary to the Scituate Reservoir, Providence, R. I. (F. O. Clapp) xl 530, 1926.
Color reduction in storage reservoirs. (C. M. Saville) xliii 416, 1929.
Contamination of water supplies by radio-active substances. (J. B. Carritt and J. C. Morris) lxii 1, 1948.
Decolorization by storage in clean-bottomed reservoirs. (K. R. Kennison) xliii 60, 1929.
Decolorization of water by storage. (R. H. Stearns) xxx 20, 1916.
Determination of zinc in water, sewage, and industrial wastes by means of di-beta-naphthylthio carbazone. (Aaron Levine and Lazarus Rubin) lxi 267, 1947.
Effect of storage upon the quality of water. (F. P. Stearns) v 115, 1890-91.
Iodine and water supplies. (H. W. Clark) xxxix 204, 1925.
Iodine in the public water supplies of Massachusetts. (H. W. Clark) xlii 132, 1928.
Manganese in impounded water supplies. (R. S. Weston and A. E. Griffin) xlvii 40, 1933; (Appendix) xlvii 280, 1933.
Nature of color in water. (Thorndike Saville) xxxi 78, 1917.
Odor and color of surface waters. (T. M. Drown) ii March 3, 1887-88.
Odors and tastes, Holyoke, Mass. (J. L. Tighe) xxiii 324, 1909.
Physical properties of water. (Allen Hazen) xvii 21, 1903.
Safe and satisfactory water from a chemical standpoint. (G. P. Edwards) lxi 260, 1947.
Salt content of wells in Mass., affected by the tidal wave and hurricane of 1938. (V. M. Hynes) lvi 355, 1942.
Salt water pollution of the Gloucester, Mass., distribution system. (F. H. Kingsbury) lv 230, 1941.
Tastes in the water supply of Marquette, Mich., due to phenol waste. (Paul Hansen) xxxix 320, 1925.
Variability in normal chloride content of surface and ground water supplies in Mass. (F. H. Kingsbury and E. W. Smith) lvii 10, 1943.
POLLUTION, PROTECTION AND CONTROL:
Fertilization of lakes by agricultural and urban drainage. (C. N. Sawyer) lxi 109, 1947.
Pollution control, New Hampshire. (C. D. Howard) 1 334, 1936.
Pollution of private water supplies. (E. J. Sullivan) liii 307, 1939.
Pollution of reservoirs by gulls and other birds. (G. C. Houser) xlv 15, 1931.
Pollution of streams affecting industrial uses. (J. F. Jackson) xxxvi 14, 1922.
Pollution of streams by manufactural wastes and methods of prevention. (H. W. Clark) xv 500, 1901.
Prevention of phenol and other tastes in water supply, Rahway, N. J. (M. M. Gibbons) xlv 6, 1931.
Protection of New York's water supply from pollution during construction work. (A. J. Provost, Jr.) xxv 301, 1911.
Protection of surface waters from pollution. (W. T. Sedgwick) xi 245, 1896-97.
Protection of public water supplies from pollution by railroads. (W. T. Sedgwick) xx 427, 1906.
Sanitation of construction areas on the Delaware aqueduct. (F. A. Marston) lv 166, 1941.
Stream pollution abatement in Connecticut. (W. J. Scott) lxi 59, 1947.
Massachusetts. (A. D. Weston) lxi 80, 1947.
New Hampshire. (L. W. Trager) lxi 68, 1947.
Rhode Island. (W. J. Shea) lxi 77, 1947.
Vermont. (E. L. Tracy) lxi 74, 1947.
Stream pollution in Connecticut. (J. F. Jackson) xxxi 627, 1917.
QUICKSAND. See EXCAVATION.
RATES. See FINANCING.
RAINFALL. See HYDROLOGY.
RECORDS. See ACCOUNTING.
RECREATION FACILITIES. See WATERSHEDS.
RED WATER. See CORROSION.
REGULATION OF PUBLIC UTILITIES.
Control of public utility companies by public service commissions. (Leonard Metcalf) xxx 160, 1916.
Control of public water supplies by New York State Conservation Commission. (Russell Suter) xxix 520, 1915.
Governmental regulation of water powers. (M. O. Leighton) xxiv 259, 1910.
Public service regulation. (W. D. Worthen) xxxi 163, 1917.
Regulation of private water companies, New York City. (D. F. Wilcox) xxxi 550, 1917.
State regulation of public utilities. (Morris Knowles) xxvi 272, 1912.
REGULATIONS. See LEGAL, MANAGEMENT and FINANCING.
REGULATORS. See GATES, VALVES.
RELIEF VALVES. See GATES, VALVES.
RESERVOIRS.

GENERAL:
Construction of reservoir embankments. (L. A. Taylor) viii 130, 1893-94.
State control of the design and construction of reservoirs, Connecticut. (C. E. Chandler) xxvi 173, 1912.

RESERVOIRS—COMPENSATING.
See LEGAL, DAMAGES.

RESERVOIRS, DISTRIBUTING:
Bursting of the earthenwork reservoir on Munjoy Hill, Portland, Me. (J. R. Freeman) viii 148, 1893-94.
Cleaning the distributing reservoir, New Bedford, Mass. (R. C. P. Coggeshall) lv 210, 1889-90.
Cobb's Hill reservoir, Rochester, N. Y. (J. F. Skinner) xxiv 498, 1910.
Covered reservoirs. (C. H. Swan) iii 45, 1888-89.
Covered reservoirs and their design. (F. C. Coffin) xiv 252, 1899-00.
Covered reservoirs, their construction and making them watertight. (F. L. Fuller) xxiii 204, 1908.
Covered reservoirs:
Albany, Ga. (J. C. Chase) viii 155, 1893-94.
Brookline, Mass. (F. F. Forbes) viii 113, 1893-94.
Franklin, N. H. (F. L. Fuller) v 160, 1890-91.
Waltham, Mass. (Bertram Brewer) xxi 325, 1907.
Covering the Natick, Mass., reservoir with a concrete roof. (F. L. Fuller) xvii 383, 1903.
Covering service reservoirs in which filtered or ground waters are stored. (G. C. Bunker and A. G. Nolte) xxxvii 261, 1923.
Design and construction of Perry Bar service reservoir, Birmingham, England. (C. A. Risbridger) lxiii 325, 1949.
Distribution reservoir, Manchester, N. H. (F. A. Shaw) xlviii 281, 1934.
Distributing reservoir, Worcester, Mass. (W. E. Hassam) xii 133, 1897-98.
Economy of circular reinforced concrete reservoir construction. (Alexander Potter) xxvi 138, 1912.
Fells reservoir, Metropolitan Water Works, Boston, Mass. (J. L. Howard) xv 20, 1900-01.
High service reservoir, Manchester, N. H. (C. K. Walker) x 66, 1895-96.
Lining a concrete reservoir. (H. J. Cook) lvi 70, 1942.
Relining elevated reservoir with gunite. (R. W. Esty) lii 30, 1938.
Relining Payson Park reservoir, Cambridge, Mass. (L. M. Hastings) xlii 45, 1928.
Repairs to lining of small reservoir, Powder Horn Hill, Chelsea, Mass. (C. M. Saville) xix 66, 1905.
Ten million gallon reservoir, Dayton, O. (Leonard Metcalf and W. T. Barnes) xxxiii 219, 1919.
Waterproofing the concrete lining of reservoirs. (W. C. Hawley) xviii 176, 1904.

RESERVOIRS, IMPOUNDING:
Ashland Basin No. 4 and the mixing and handling of concrete, Boston, Mass. (W. F. Learned) ii Dec. 3, 1887-88.
Cleaning and grubbing Scituate Reservoir, Providence, R. I. (W. A. Reid) xl 499, 1926.
Cochituate reservoir opened October, 1848, Boston, Mass. 208, Trans. 1885.
Construction of storage reservoir, New London, Conn. (W. H. Richards) xviii 67, 1904.
Flood water channel of Altoona reservoir. (C. W. Knight) xiv 151, 1899-1900.
Grubbing, Kensico reservoir, New York, N. Y. (G. A. Winsor) xxix 554, 1915.
Haskell's Brook reservoir and dam, Gloucester, Mass. (H. W. Spooner) xix 27, 1905.
Kensico reservoir, New York, N. Y. (W. F. Smith) xxix 486, 1915.
Reservoir and dam No. 3, Woonsocket, R. I. (B. I. Cook) xii 20, 1897-98.
Storage facilities, Pawtucket Water Works. (F. C. Williams) xliii 113, 1929.
Worcester's reservoirs. (G. W. Batchelder) xxxvii 392, 1923.
See also DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES.

REVENUE. See MANANGEMENT and FINANCING.

RUN-OFF. See HYDROLOGY.

SALT WATER SUPPLIES. See FIRES.

SAND FILTERS. See TREATMENT.

SANITATION. See HEALTH and QUALITY.

SEDIMENTATION. See TREATMENT.

SEEPAGE. See DAMS.

SERVICE PIPES AND EQUIPMENT. See PIPE (SERVICE).

SEWAGE AND WASTE DISPOSAL.
Copper sulphate treatment of sewage. (G. A. Johnson) xix 506, 1905.
Disposal of sludge and wash water for Connecticut water filtration plants. (F. O. A. Almquist) lx 344, 1946.
Explosion of the Saratoga septic tank. (W. P. Mason) xxi 23, 181, 1907.
Purification of sewage by bacterial methods. (L. P. Kinnicutt) xv 119, 1900-01.
Sludge disposal at water purification plants in New England. (F. E. Smith) lxii 265, 1948.

SINKING FUNDS. See FINANCING.

SIPHONS. See PIPES.

SNOWFALL. See HYDROLOGY.

SOFTENING. See TREATMENT (SOFTENING).

SOIL CORROSION. See CORROSION.

SOURCES OF SUPPLY.
See GROUND WATER, SUPPLY, DESCRIPTION, WATERSHEDS.

SPECIFICATIONS AND STANDARDS.
Note: Where no page numbers are given the article is in the back of the volume.
Adoption by foundries of standard specifications. (Discussion) xx 346, 1906.
American standard specifications for cast iron pit cast pipe for water and other liquids. (A. S. A.) lv Mar., 1941.
Cast iron pipe specifications. (W. R. Conard) xxi 54, 367, 1907.
Contract and specifications for furnishing cast-iron pipes and special castings, New Bedford, Mass. xviii 264, 1904.
Gate valve specifications. 1916 and 1938. (S. E. Killam) liii 358, 1939.
Gate valves. (Committee report) lix 398, 1945; lx 430, 1946; lxi 370, 1947; lxii 319, 1948; lxiii 398, 1949; lxiv 395, 1950.
Hydrant markings. (Committee report: xlviii 252, 1934; xlviii 379, 1934.

Hydrant specifications. (Committee report) lix 397, 1945; lx 432, 1946; lxi 371, 1947; lxii 318, 1948; lxiii 425, 1949; lxiv 394, 1950.
Laying cast iron pipe. (Committee report) lix 400, 1945; lx 434, 1946; lxi 372, 1947; lxii 320, 1948; lxiii 422, 1949; lxiv 392, 1950.
Manual for the computation of strength and thickness of cast iron pipe. (A. S. A.) lv Mar., 1941.
Meter specifications. (Committee report) lix 401, 1945; lxiii 426, 1949; lxi 374, 1947.
Pressure piping. (Committee report) lvii 398, 1943.
Proposed American standard specifications for coal-tar-dip coating for cast iron pipe and fittings. (A. S. A., A. S. T. M., A. W. W. A., N. E. W. W. A.) lvi Dec., 1942.
Reinforced concrete pressure pipe. (Committee report) lxii 317, 1948; lxiii 396, 1949; lxiv 391, 1950.
Revisions in standard specifications for elevated steel water tanks, standpipes and reservoirs. (A. W. W. A.) lvi Dec., 1942.
Revision of recommended practice for tank inspection, repair and repainting. lxiv 89, 1950.
Revision of recommended practice for tank inspection, repair and repainting. (A. W. W. A.) lxiv 89, 1950.
Sluice gates. (Committee report) lx 435, 1946.
Specifications for fire hydrants and valves. (Discussion) xliii 157, 1929.
Specifications for cast iron pipe and specials. (Committee report) xlix 458, 1935; lx 437, 1946; lxi 373, 1947; lxii 316, 1948; lxiv 397, 1950.
Specifications for cement mortar lining for cast iron pipe and fittings. (A. S. A.) lv Mar., 1941.
Specifications for cleaning water mains, Hartford, Conn. (C. M. Saville) xxvii 489, 1913.
Specifications for pumping engines, St. Louis, Mo. (F. W. Dean) xi 172, 1896-97.
Specifications for sluice gates, suggested revision of Section 22, testing. (Committee report) lx 436, 1946.
Specifications for steel pipe. (Committee report) lxii 321, 1948; lxiii 397, 1949; lxiv 393, 1950.
Standard flanges for water pipes. (F. C. Coffin) vi 45, 1891-92.
Standard hose couplings. (F. M. Griswold) xxxiv 63, 1920.
Standard specifications. (Committee report) xliii 354, 1929; xliv 568, 1930.
Standard specifications for cast iron pipe and other castings. (Committee report) xvi 92, 330, 1902; xvii 84, 1903; xxvi 170, 1912; xxviii 92-348, 1914; xxxii 70, 184, 1918; xxxiv 230, 1920; xxxvii 108, 1923; xl 96, 1926; xli 313, 1927; xliii 349, 351, 1929.
Standard specification for cold water meters, note relative to: lxi 283, 1947.
Standard specifications for elevated steel water tanks, standpipes and reservoirs. (A. W. W. A.) lv Dec., 1941; (A. W. W. A., A. W. S., N. E. W. W. A.) lxii Dec., 1948.
Standard specifications for hydrants. (Committee report) xxiv 224, 1910; xxvii 154, 1913; xxiv 205, 1910; xxv 137, 1911; xxvi 76, 1912; xxviii 89, 184, 194, 1914; xxxiii 99, 1919.
Standard specifications for fire hydrants for ordinary water works service. (A. W. W. A., N. E. W. W. A.) lv Mar., 1941.
Standard specifications for water meters. (R. J. Thomas) xxx 430, 1916; (Committee report) xxxv 187, 394, 1921; xxxvii 201, 1923.
Standard specifications for water works. (E. H. Gowing) vi 168, 1891-92.
Standardization of hydrant markings. (S. S. Anthony) xlvii 103, 1933.
Standardization of manhole frames and covers. (Committee report) xli 315, 1927; xliii 350, 1929.
Standardization of meter dials. (Committee report) xl 172, 1926.
Standardization of pipe flanges and fittings. (Committee report) xlii 315, 1928; xliii 347, 1929.
Standardization of threads for fire hose couplings and fittings. (F. M. Griswold) xxxv 43, 1921; (J. H. Howland) xxxviii 73, 1924.
Tentative recommended practice for inspecting, repairing and repainting elevated steel water tanks, standpipes and reservoirs. (A. W. W. A.) lxii Dec., 1948.
Tentative specifications for cold water meters, displacement type. (A. W. W. A.) lvi Dec. 1942.
Tentative standard specifications for cold water meters, current type. (A. W. W. A) lxi Sept., 1947.
Tentative standard specifications for cold water meters, current type, propeller driven. (A. W. W. A.) lxiii Dec., 1949.
Tentative standard specifications for cold water meters, compound type. (A. W. W. A.), lxi Sept. 1947.
Tentative standard specifications for cold water meters, fire service type. (A. W. W. A.) lxi Sept., 1947.
Tentative standard specifications for reinforced concrete water pipe, steel cylinder, type, not prestressed. (A. W. W. A.) lxii June, 1948.
Tentative standard specifications for reinforced concrete water pipe, steel cylinder type, prestressed. (A. W. W. A.) lxiv Mar., 1950.
Tentative standard specifications for threads for underground service line fittings. (A. W. W. A.) lxi Dec., 1947.
Threads for underground service lines. (Committee report) lxii 322, 1948.
Uniformity in the direction of opening hydrants and gate valves and size and shape of hydrant and gate nuts. (Committee report) xx 348, 1906; xxv 141, 1911; xxvi 74, 1912.
Uniformity of threads for hydrant connections. (Committee report) xix 385, 1905.
Wrought iron pipe, wrought steel pipe and tubing. (Committee report) xliii 353, 1929.
SPILLWAYS. See DAMS AND RESERVOIRS (IMPOUNDING).
STATISTICS.
Public water supplies:
Connecticut. (W. J. Scott and F. O. A. Almquist) xliii 298, 1929.

Maine. (E. W. Campbell) xli 99, 1927.
Massachusetts. (A. D. Weston) xxxviii 144, 1924.
Rhode Island. (S. De M. Gage) xl 117, 1926.
Uniform statistics. (Committee report) xvi 51, 263, 1902.
Water-supply statistics. 223, Trans. 1885. Boston, Mass. 221, Trans. 1885. Newton, Mass. 224, Trans. 1885.
Water works statistics compiled by the N. E. W. W. A.:

1886	1	Jun 29	1886-87
1887	ii	March 35	1887-88
1888-92	vii	225	1892-93
1893	ix	127	1894-95
1894	x	131	1895-96
1895-96	xii	273	1897-98
1896	xii	282	1897-98
1897-99	xv	65	1900-01
1900	xv	367	1901
1901	xvi	223	1902
1902	xvii	235	1903
1903	xviii	277	1904
1904	xix	241	1905
1906	xxi	191	1907
1909	xxiv	419	1910

STANDPIPES. See **TANKS.**
STERILIZATION. See **TREATMENT (DISINFECTION.**
STORAGE. See **HYDROLOGY, QUALITY, RESERVOIRS, DAMS.**
STREAM FLOW. See **HYDROLOGY.**
SUPPLY.
GENERAL:
Additions to New England water works plants. (Allen Hazen) xxxvii 233, 1923.
Conservation of water resources. (M. O. Leighton) xxii 381, 1908.
Days of small things. (C. W. Sherman) xlviii 26, 1934.
Design of small water works systems. (W. S. Johnson) xxviii 144, 1914.
Double municipal supplies. (W. T. Sedgwick and H. P. Letton) xxv 440, 1911.
Experiences in the arid southwest. (S. M. Allis) xii 261, 1897-98.
Massachusetts water report) (Allen Hazen) xi 44, 1926.
Mississippi River as a source of water supply. (E. G. Smith) xix 215, 1905.
New York, N. Y., water supply report. (J. M. Betton) xviii 254, 1904.
Relation of great ponds to water supplies. (J. F. Jackson) iii 203, 1888-89.
Roadside water supplies. (E. W. Campbell) xlix 182, 1935.
Secondary water supplies, their danger and value. (Discussion) xxiv 377, 1910.
Selection of sources of water supply. (F. P. Stearns) vi 102, 1891-92.
Surface water supplies, Mass. (F. H. Kingsbury) liii 1, 1939.
Survey of water works activities, 1910. (G. A. King) xxv 161, 1911.
Water supply and its development for small cities in the west. (Wynkoop Kiersted) v 83, 1890-91.
Water supply of a state institution. (B. F. Snow) l 197, 1936.
Water supply in the semi-arid region of the United States. (Clarence Goldsmith) xxvi 144, 1912.
Water supply of southeastern Massachusetts. (X. H. Goodnough) xxxvi 527, 1922.
Water supply practice in Germany, 1945. (A. E. Gorman) lx 132, 1946.
Water supply problems in the tropics. G. C. Bunker) l 1, 1936.
Water supply problems in Latin America. (C. I. Sterling, Jr.) lx 221, 1946.
See also **DESCRIPTION OF VARIOUS WATER SYSTEMS AND SUPPLIES.**
MILITARY:
Military and emergency water supplies. (G. C. Danforth) xli 129, 1927.
Military field sanitation. (W. A. Hardenbergh) lv 431, 1941.
Military use of public water supplies. (R. N. Clark) lix 237, 1945.
Okinawa water treatment plants. (E. W. Campbell) lxi 50, 1947.
Sanitary engineering in the occupied zone of Germany. (A. F. Meyer) lxiii 277, 1949.
Twenty-sixth Engineers—Water supply regiment, A.E.F. xxxiii 569, 1919.
Water supply at advance bases of the U. S. Navy. (D. H. Bennett) lviii 51, 1944.
Water supply, Camp Devens, Mass. (Frank Barbour) xxxii 145, 299, 1918.
Water supply equipment and facilities for advance bases of the U. S. Navy. (C. T. Dickerman) lviii 47, 1944.
Water supply for the Air Transport Command. (F. E. Smith) lxi 238, 1947.
Water supplies for the American Expeditionary Forces. (F. F. Longley) xxxiii 465, 1919.
Water supply in the Asiatic Pacific Theater. (E. B. Cobb) lx 54, 1946.
Water supply in North African Campaign. (W. E. Stanley) lviii 293, 1944.
Water supply in time of war. (F. F. Longley) liv 355, 1940.
Water supply in time of war. (Discussion) lv 115, 1941.
SWIMMING POOLS.
Swimming pool management. (W. P. Mason) xxxiii 458, 1919.
TANKS AND STANDPIPES.
Brookline's spheroidal tank. (W. B. Bushway) liv 76, 1940.
Butt-welded steel standpipe, Scituate, Mass. (W. J. Lumbert) liii 144, 1939.
Cleaning and painting standpipes. (C. W. Sherman) xxxv 51, 1921.
Concrete standpipes. (Discussion) xxix 184, 1915.
Design and construction of preload tanks and domes. (A. C. Lindberg) lvi 230, 1942.
Design and construction of standpipes and elevated tanks for distribution systems. (H. E. Bailey) lviii 356, 1944.
Earthquakes and elevated tanks, summary of a talk by A. C. Ruge. xlix 226, 1935.
Fall of the Fairhaven, Mass., water tower. (R. C. P. Coggeshall) xv 522, 1900-01.
Forbes Hill steel standpipe, Quincy, Mass., with masonry tower. (C. M. Saville) xvi 177, 1902.
Grouting or cushioning standpipe bases. (C. W. Sherman) xxx 131, 1916.
Painting standpipes (Discussion) xxvi 387, 1912; (Committee report) xliv 553, 1930.
Painting standpipe, Middleboro, Mass. (J. E. Beals) iii 157, 1888-89.
Protecting iron and steel standpipes from corrosion. (C. W. Sherman) xxxiii 272, 1919.

Protection of standpipes exposed to extreme low temperatures. (H. G. Hunter) liv 73, 1940.
Reducing pressure on a gravity system by use of intermediate standpipe. (E. H. Gowing) xvii 139, 1903.
Reinforced concrete standpipes. (C. W. Sherman) lii 201, 1938.
Reinforced concrete standpipes.
Attleboro, Mass. (G. H. Snell and F. A. Barbour) xx 302, 1906.
Hull, Mass. (L. T. Doten) xix 33, 1905.
Middleboro, Mass. (G. A. Sampson) xxx 251, 1916.
Westerly, R. I. (Thomas McKenzie) xxix 169, 1915.
Repairs to standpipe, Attleboro, Mass. (H. F. Conant) xxix 179, 1915.
Repairs to standpipe, Bath, Me. (C. E. Carter and W. F. Abbott) xxxv 318, 1921.
Standpipes. (B. I. Cook) xiv 124, 1899-1900.
Standpipes and their designs. (F. C. Coffin) vii 202, 1892-93.
Standpipe design and construction, Gloversville, N. Y. (F. A. Marston) xxxvi 288, 1922.
Standpipe, Wilmington, N. C. (J. C. Chase) viii 68, 1893-94.
Standpipe, Atlantic Highlands, N. J. (C. P. Bassett) vii 215, 1892-93.
Steel tank and tower, East Providence, R. I. (F. M. Bowman) xix 55, 1905.
Two million gallon elevated tank, Charlestown, S. C. (J. E. Gibson) xli 277, 1926.
Useful life of iron and steel standpipes. (C. W. Sherman) liv 149, 1940; (Discussion) (A. V. Ruggles) liv 45, 1940.
Water tank, Fall River, Mass. (Patrick Kieran) ii Sept. 26, 1887-88.
Waterproofing concrete standpipe, Waltham, Mass. (G. C. Brehm) xxxviii 297, 1924.
See also CATHODIC PROTECTION.
TASTES AND ODORS. See QUALITY and TREATMENT.
THAWING. See ICE AND THAWING.
THICKNESS OF PIPE. See PIPE and SPECIFICATIONS.
TREATMENT AND PURIFICATION.
GENERAL:
Accelerated clarification. (F. J. Lammers) liv 447, 1940.
Activated carbon. (E. A. Sigworth) li 200, 1937.
Algae control and method of enumeration. (S. O. Swartz) lxiv 72, 1950.
Algae control at Danbury, Conn. (E. A. Tarlton) lxiii 165, 1949.
Control of microscopic organisms. (William Haine) xxxii 10, 1918.
Control of microscopic organisms with particular reference to New York City. (F. E. Hale)) xliv 361, 1930.
Control of tastes and odors due to microscopic organisms Spot Pond reservoir, Boston, Mass. (S. E. Killam) xlvi 241, 1932.
Copper sulphate as an algicide. (G. T. Moore) xix 474, 1905; (D. D. Jackson) xix 483, 563, 1905; (X. H. Goodnough) xix 525, 1905.
Copper sulphate distributor. (S. S. Anthony) lxi 253, 1947.
Copper sulphate treatment of Cape Pond, Rockport, Mass. (E. S. Chase) xxxviii 48, 1924.
Development of water purification, New England. (R. S. Weston) xlv 315, 1931.
Developments in water purification. (W. Donaldson) xlii 372, 1928.
Difficulties in water purification. (G. T. Swarts) xxv 191, 1911.
Economics of water purification. (A. L. Shaw and E. S. Chase) lii 181, 1938.
Effect of municipal water treatment on boiler-water conditioning. (J. N. Welsh) lxiii 297, 1949.
Electrical purification of water. (T. M. Drown) viii 183, 1893-94.
Electronic principle of water purification. (F. E. Stuart) lx 236, 1946.
Experiences of the Sanford water district in water treatment. (H. L. Clark) lvi 59, 1942.
Hydrogen-ion concentration in water purification. (H. P. Eddy) xxxv 385, 1921.
Man's imitation of nature in purification of water. (G. T. Swarts) xiii 1, 1898-99.
Modern aspects of water purification. (E. S. Chase) xlviii 451, 1934.
Powdered activated carbon in water purification. (F. E. Stuart) xlvi 312, 1932; (Appendix) xlvi 365, 1932.
Purification of salt water, Gloucester, Mass. (R. S. Weston) xxv 386, 1911.
Recent developments in the chemical treatment of water supplies. (Lazarus Rubin) lxii 126, 1948.
Red water causes and elimination. (I. L. Newell) lvi 166, 1942.
Removal of color, organisms, and odor from water. (H. W. Clark) xvii 1, 1903.
Removal of microscopic organisms from ponds and reservoirs by copper sulphate. (Symposium) xix 474, 1905.
Removing organisms from reservoir, Syracuse, N. Y. (W. R. Hill) xiv 213, 1899-1900.
Removing organisms from water. (F. S. Hollis) xiv 221, 1899-1900.
Small purification plants: plea for more efficient operation. (H. P. Letton) xxvii 532, 1913.
Solving a difficult clarification problem at Kennebunk, Me. (M. Lane and L. G. Smith) lxiii 209, 1949.
Statistics of water purification plants. (Committee report) xxix 232, 1915; xxviii 220, 1914; xxxiv 69, 1920.
Taste and odor control. (E. A. Sigworth) lxiii 238, 1949.
Taste and odor control in public water supplies. (J. M. Caird) xlix 149, 1935.
Taste and odor control in small plant. (R. G. Yaxley) xlix 152, 1935.
Taste and odor control, New Haven Water Co. (M. S. Wellington) liii 171, 1939.
Taste and odor control, Rockport, Mass. (G. C. Houser) xlix 156, 1935.
Use of activated carbon in treating open reservoirs. (H. E. Bailey and James Studley) lxi 135, 1947.
Use of hexametaphosphate in water treatment. (Owen Rice) lvi 84, 1942.
Unusual methods of water purification. (M. E. Flentje) xliii 38, 1929.
Water disinfecting tablets. (R. P. Burden, G. H. Conant, G. M. Fair, J. C. Morris) lviii 270, 1944.
Water purification, Philadelphia, Pa. (J. C. Trautwine, Jr.) xxii 419, 1908.
Water purification problems at Durham, N. H. (K. E. Gunn) lviii 255, 1944.

Water treatment for industries and boilers. (S. T. Powell) lii 418, 1938.
Water treatment in New York State. (C. R. Cox) liii 444, 1939.

AERATION AND DECARBONATION:
Aeration in water treatment. (Herman Anderson) xlvi 373, 1932.
Aeration in natural waters. (T. M. Drown) vii 96, 1892-93.
Aeration of water. (C. B. Brush) 11 Sept. 71, 1887-1888.
Aeration of water supplies by natural canals and low dams. (S. E. Babcock) 11I 35, 1888-89.
Aeration in water purification. (Malcolm Pirnie) xliii 395, 1929.
Decarbonation of public water supplies. (G. C. Whipple) xxvii 193, 445, 1913.
Relative efficiency of activated carbon and aeration in the removal of tastes and odors. (G. C. Bogren) lvi 184, 1942.

COAGULATION AND SEDIMENTATION:
Application of coagulant intermittently, Springfield, Mass. (E. E. Lochridge) xxxi 48, 1917.
Clarification of the Catskill water by coagulation and sedimentation. (W. W. Brush) xlii 65, 1928.
Experimental treatment of Rancocas Creek water for Fort Dix, N. J. (R. D. Mitchell) lvi 76, 1942.
Mechanical conditioning of treated waters. (R. S. Rankin) xlvi 380, 1932.
Mechanically-cleaned sedimentation basins for water works. (E. B. Besselievre) xli 52, 1927.
Removal of color from water. (Discussion) xvi 156, 1902; (H. W. Clark) xvii 1, 1903.

DISINFECTION:
Ammonia-Chlorine treatment, E. Providence, R. I. (J. V. Turner and C. L. Pool) xlvii 13, 1933.
Automatic chlorination, Concord, N. H. (P. R. Sanders) xliii 399, 1929.
Bromine and chlorine dioxide as water disinfectants. (J. A. McCarthy) lviii 55, 1944.
Chlorinating new water mains. (G. O. Adams and F .H. Kingsbury) li 60, 1937.
Chlorination. (R. N. Donnelly) xlii 79, 1928.
Chlorination, a five year review. (A. E. Griffin) lviii 322, 1944.
Chlorination for special and emergency purposes. (J. D. MacMahon) xlvi 121, 1932.
Chlorination of a Cambridge, Mass., main. (F. E. Smith) li 57, 1937.
Chlorination of New England water supplies. (W. J. Orchard) xxxvi 99, 1922.
Chlorine control apparatus for sterilization of water supplies. (G. H. Pratt) xxxviii 63, 1924.
Chlorine - ammonia treatment, Amherst, Mass. (J. E. Fuller) lviii 89, 1944.
Chlorine-dioxide—a new development in treatment. (J. F. Synan, J. D. MacMahon and G. P. Vincent) lviii 264, 1944.
Chlorine dioxide as a bactericide in water works operation. (J. F. Synan and R. N. Aston) lxii 80, 1948.
Chlorine dioxide for the treatment of water supplies. (J. A. McCarthy) lix 252, 1945.
Chlorine studies and taste producing substances. (N. J. Howard and R. E. Thompson) xl 276, 1926; xli 59, 1927.
Copper sulphate as a disinfectant. (H. W. Clark) xix 503, 1905; (J. W. Ellms) xix 496, 1905; (D. D. Jackson) xix 488, 563 1905; (W. P. Mason) xix 481, 1905.
Disinfection as an adjunct to water purification. (H. W. Clark and S. De M. Gage) xxiii 302, 1909.
Double municipal supplies, one pure and the other sterilized. (W. T. Sedgwick and H. P. Letton) xxv 440, 1911.
The dynamics of water chlorination (G. M. Fair, S. L. Chang and J. C. Morris) lxi 285, 1947.
Experience with break-point chlorination in Conn. (F. O. A. Almquist) lx 269, 1946.
Free-residual chlorination at New Haven Water Co. (M. S. Wellington and S. Jacobson) lx 363, 1946.
Katadyn treatment of water and swimming pools. (Robert Shapiro and F. E. Hale) li 113, 1937.
Making chlorine at the point of consumption. (C. W. Marsh) xxxvi 1, 1922.
Metallic copper as a disinfectant. (H. Kraemer) xix 487, 1905.
Modern water chlorination practice. (L. H. Enslow) xlviii 6, 1934.
Ozone as a sterilising agent for water purification. (S. T. Powell) xxix 87, 1915.
Ozone treatment for the removal of taste, odor and color. (Victor Hann) lxi 247, 1947.
Ozonization of water. (G. A. Soper) xv 1, 1900-01.
Oxidation-potential measurements in determining the concentration of germicidally active chlorine. (S. L. Chang) lix 79, 1945.
Progress in break-point chlorination. (A. E. Griffin) lxi 145, 1947.
Progress report on chlorine dioxide. (R. N. Aston) lxiv 1, 1950.
Purification of Bridgeport water supply. (F. C. Barrows) xlvii 219, 1933.
Recent developments in chlorination. (F. D. West) xlv 136, 1931.
Some chemical aspects of breakpoint chlorination. (N. S. Chamberlin and A. E. Griffin) lv 371, 1941.
Sterilization of surface water by chemical methods. (B. Kröhnke) xix 581, 1905.
Ultra-violet rays for water purification. (Max von Recklinghausen) xxix 202, 1915.
Water chlorination experience. (F. O. A. Almquist) li 41, 1937.
Water disinfection in Maryland. (H. R. Hall and R. B. Morse) xxx 301, 1916.
Water sterilization, Wakefield, Mass. (E. C. Sherman) xxx 135, 1916.

FILTRATION:
Anthracite filters. (H. S. R. McCurdy) li 37, 1937.
Application of copper sulphate to Hartford Reservoir and effects upon length of filter runs. (J. E. Garratt) xxxvi 522, 1922.
Behavior of overloaded filters. (L. F. Dutton) lxii 95, 1948.
Determination of comparative efficiencies of filter washing. (Joseph Wuraftic) lv 411, 1941.
Double filtration of water. (H. W. Clark) xxiv 585, 1910.
Experiments in filtering Allegheny River water, Pittsburgh, Pa. (Morris Knowles) xv 148, 1900-01.

Filter bed troubles and their elimination. (J. R. Baylis) li 1, 1937.
Filter design. (J. W. Armstrong) xxxix 254, 1925.
Filter operation and maintenance. (J. R. Baylis) liv 393, 1940.
Filtration of water. (H. W. Rogers) 54, Trans. 1884; (C. B. Brush) ii Sept. 71, 1887-88; (Edwin Darling) iii 165, 1888-89; (T. M. Drown) v 91, 1890-91; (H. K. Higgins) xxv 454, 1911.
Fineness modulus for filter sands. (R. G. Tyler) xxxix 239, 1925; xl 24, 1926.
Introduction of pre-chlorination of slow sand filters. (Samuel Jacobson and M. S. Wellington) lxiii 128, 1949.
Loss of head in rapid sand filters. (R. G. Tyler, W. A. Danielson and M. Le Bosquet, Jr.) xl 322, 1926.
Measurement of sand expansion. (H. J. Krum and E. M. Jones) lii 107, 1938.
Mechanical filter bottoms and strainer systems. (R. S. Weston) xxxi 474, 1917.
Mechanical filtration. (E. B. Weston) xiv 333, 1899-1900.
Operating experience at Groton, Conn., filter plant. (A. C. Greenleaf) lxiv 97, 1950.
Porous plates for filter bottoms. (T. R. Camp) xlix 1, 1935.
Pressure filtration. (E. E. Tankard) lxiv 299, 1950.
Purification experiments, Brisbane, Australia. (Hardolph Wasteneys) xxv 422, 1911.
Rapid sand filtration. (G. A. Johnson) xxxi 390, 1917.
Rapid sand filtration plants—Description:
Bristol, Conn. (J. A. Newlands) lii 324, 1938.
Cambridge, Mass. (G. A. Johnson) xxxvii 339, 1923.
Greenwich Water Co., Conn. (E. S. Chase) xlii 396, 1928.
Hartford, Conn. (W. A. Gentner) xlv 360, 1931.
Lawrence, Mass. (A. L. Shaw and E. S. Chase) liii 412, 1939.
Lebanon, N. H. (R. S. Holgren) xlvii 52, 1933.
Miraflores, C. Z. (G. M. Wells) xxviii 233, 1914.
Montreal, Que. (F. E. Field) xxxix 213, 1925; (F. E. Field and J. H. Harrington) xlii 359, 1928.
Mystic Valley, Conn. (W. H. Chase and T. B. Ray) l 325, 1936.
New Orleans, La. (R. S. Weston) xvii 27, 157, 1903.
Newport, R. I. (R. E. Milligan) xxv 60, 1911.
Providence, R. I. (W. W. Kittredge) xl 522, 1926.
Putnam, Conn. (F. O. Stevens) xxxviii 103, 1924.
Rochester and Lake Ontario Water Co., N. Y. (J. M. Caird) xxiv 503, 1910.
Salem and Beverly, Mass. (F. A. Marston and J. W. Raymond) l 111, 1936.
Wheeling, W. Va. (J. F. Laboon) xxxix 291, 1925.
Willimantic, Conn. (R. F. Kittredge) liii 328, 1939.
Rapid sand filtration plants—Operation:
Biddeford, Me. (E. T. McDowell) liii 158, 1939.
Cambridge, Mass. (M. C. Whipple and H. C. Chandler) xli 218, 1927; (M. C. Whipple and F. E. Smith) xlv 321, 1931; (F. E. Smith) lv 254, 1941; (F. E. Smith) lxii 220, 1948.
Evanston, Ill. (J. W. Gaitenby) xxxi 619, 1917.
Greenwich, Conn. (H. C. Chandler) xlv 351, 1961.
Providence, R. I. (J. W. Bugbee and E. L. Bean) xli 399, 1927; (E. L. Bean) xlv 335, 1931; (F. L. Bean) xlix 406, 1935.
Salem and Beverly, Mass. (R. P. Johnson) li 185, 1937.
Toronto, Ont. (N. J. Howard) xxxiii 504, 1919.
Watertown, N. Y. (F. H. Jennings) xxxix 65, 1925.
Relative applicability of sand and mechanical filters. (G. W. Fuller) xiv 32, 1899-1900.
Sand filtration with special reference to American needs and European experiences. (W. T. Sedgwick) vii 103, 1892-93.
Selection of filter sand. (Allen Hazen) vii 165, 1892-93.
Slow sand-filtration plants—Description:
Albany, N. Y. (Allen Hazen) xiv 291, 1899-1900.
Ashland, Wis. (William Wheeler) xi 301, 1896-97.
Gardiner, Me. (Henry Richards) xxxi 216, 1917.
Greenfield, Mass. (H. L. Field) li 173, 1937.
Lawrence, Mass. (M. F. Collins) xvii 288, 1903.
Milford, Mass. (F. L. Northrop) x 262, 1895-96.
Nantucket, Mass. (W. F. Codd) viii 171, 1893-94.
Newburyport, Mass. (P. F. Howard) xlix 187, 1935.
Philadelphia, Pa. (J. C. Trautwine, Jr.) xxii 419, 1908.
South Norwalk, Conn. (H. W. Clark) xxx 86, 1916.
Springfield, Mass. (C. F. Story) xxiii 229, 1909.
Springfield, Mass. (H. F. Salmond) xlvi 245, 1932.
Slow sand filtration plants—Operation:
Burlington, Vt. (O. A. Canning) xxxvii 396, 1923
Hartford, Conn. (A. J. Minkus) lxii 242, 1948.
Lawrence, Mass. (H. F. Mills) ix 44, 1894-95; (H. W. Clark) xiv 82, 1899-1900; (Morris Knowles, M. F. Collins and A. D. Marble) xxii 193, 1908.
Philadelphia, Pa. (Torresdale). (F. D. West and J. S. V. Siddons) xxvii 358, 1913.
Poughkeepsie, N. Y. (C. E. Fowler) xii 209, 1897-98.
Providence, R. I. (J. W. Bugbee) xxxviii 244, 1924; (J. W. Bugbee) xl 464, 1926; (F. L. Cady) xxxii 21, 1918.
Uses and abuses of water filtration. (G. H. Pratt) xxvi 341, 1912.
Water ejector for transporting sand. (Morris Knowles and J. M. Rice) xxv 83, 1911.
Water filtration — present practice and trends. (E. S. Chase) lviii 344, 1944.
Water purification by filters charged with aluminum or ferric hydroxide. (H. W.

Clark) xxxvi 385, 1922; xxxviii 84, 1924.
Water treatment at Groton, Conn. (A. L. Shaw and A. N. Tiffany) lv 233, 1941.
IRON REMOVAL:
Deferrization and demanganization. (R. S. Weston) l 231, 1936.
Deferrization and demanganization of water, Cohasset, Middleboro and Brookline, Mass. (R. S. Weston) xxviii 27, 1914.
Iron and hardness removal. (D. J. Saunders) lii 443, 1938.
Iron and iron coagulants. (Malcolm Pirnie) li 437, 1937.
Iron and manganese removal in the Spaulding precipitator. (R. H. Babcock) lxiv 138, 1950.
Iron coagulation and coagulants. (E. L. Bean) xlvii 273, 1933.
Iron removal plants:
Amesbury, Mass. (G. A. Sampson) xlii 53, 1928.
Reading, Mass. (L. M. Bancroft) xi 294, 1896-97.
Removal of iron from ground waters by coke filters. (H. W. Clark) xi 277, 1896-97.
Studies on the removal of iron and manganese. (E. W. Moore and E. A. Snow, Jr.) lvi 320, 1942.
Water supplies and iron removal plant, Provincetown, Mass. (P. F. Howard) lvii 63, 1943.
SOFTENING:
Water softening plant, Oberlin, O. (W. B. Gerrish) xix 422, 1905.
TRENCHING AND TRENCHING MACHINERY. See EXCAVATION also PIPE.
TUBERCULATION. See CORROSION.
TUNNELS. See AQUEDUCTS.
TYPHOID. See HEALTH.
ULTRA-VIOLET RAYS. See TREATMENT (DISINFECTION).
UNEMPLOYMENT RELIEF. See MANAGEMENT also FEDERAL AGENCIES AND GRANTS.
VALUATION. See FINANCING.
VALVES. See GATES.
VENTURI METERS. See HYDRAULICS also METERS.
WARTIME PROBLEMS, CIVIL DEFENSE, MUTUAL AID.
Action of the Mass. Dept. of Public Health in the emergency protection of public water supplies. (A. D. Weston) lv 9, 1941.
American selective service. (D. B. Weden) lv 1, 1941.
Chemical contamination of water supplies. (Lazarus Rubin) lvi 276, 1942.
Cooperation of fire and water departments. (R. C. Dennett) lv 23, 1941.
Cooperation of fire and water departments in emergencies. (S. J. Pope) lv 458, 1941.
Coordinating the fire service. (P. C. Charnock) lvi 53, 1942.
Disaster protection of water supplies, Mass., 1938. (J. K. Knox) liii 216, 1939.
Disaster protection of water supplies, R. I. (J. J. Dillon) liii 212, 1939.
Emergency protection of public works and utilities. (W. W. Brush) lv 48, 1941.
Emergency water service school. (Committee report) lvi 517, 1942.
Guarding public water supplies. (L. E. Moore) lvi 265, 1942.
Increase of water facilities to meet wartime demand at Newport, R. I. (H. E. Watson) lxi 211, 1947.
Instruction in water bacteriology at the Mass. decontamination school. (J. A. McCarthy) lvi 288, 1942.
Mutual interests between the water-works and the atomic-energy industries. (A. E. Gorman) lxiv 148, 1950.
Office of war utilities program for cooperation with the water industry. (A. E. Gorman) lvii 313, 1943.
Preliminary report on sanitary engineering aspects of national security. (National Research Council) lxii 169, 1948.
Proceedings of the Air Raid Precaution School:
Address by the regional director of Civilian Defense. (J. M. Loughlin) lvii 83, 1943.
Delayed bombs and bomb reconnaissance. (R. L. Star) lvii 110, 1943.
Effects of bombings on structures and other installations. (W. C. Voss) lvii 127, 1943.
Elements of teaching. (R. L. Starr) lvii 100, 1943.
Effects of war gases on water supplies. (H. H. Potter) lvii 136, 1943.
Objectives of the school. (H. H. Potter) lvii 81, 1943.
Organization of civilian defense. (D. A. Reekie) lvii 91, 1943.
The F.B.I. war investigative jurisdiction. (J. T. Madigan) lvii 163, 1943.
When the bombs fall. (A. B. Kons) lvii 116, 1943.
Protection of public water supplies, a symposium (abstract). (E. S. Chase) lvi 38, 1942.
Public water supply in the civilian defense program. (R. E. Tarbett) lvi 221, 1942.
Report of committee on water works emergencies. lv 598, 1941.
Sanitary engineering aspects of national security. (Preliminary Comm. Rep.) lxii 169, 1948.
State emergency plan of the Commonwealth of Mass. (A. D. Weston) lv 489, 1941.
Toxic contaminants of drinking water. (L. T. Fairhall) lv 400, 1941.
Training of technical consultants for chemical and bacterial contamination. (L. A. Bradley) lvi 21, 1942.
War department civilian protection school at Amherst, Mass. (H. C. Hall) lvi 294, 1942.
War time activities. (Committee report) lviii 400, 1944.
War time problems in the Portland water district. (F. J. Reny) lvi 309, 1942.
War time water problems. (Chemists round table) lx 103, 1946.
Water—a critical war material. (A. E. Gorman) lvi 302, 1942.
Water supplies for air-raid fires. (Horatio Bond) lviii 35, 1944.
Water supply in war time. (John Bowman) lv 483, 1941.
Water works cooperation in defense. (Committee report) lvi 520, 1942.
Water works cooperation in defense. (Committee report) lvii 402, 1943.
Water works emergencies. (Committee report) lv 598, 1941.
Water works operations under emergency conditions. (H. E. Jordan) lv 516, 1941.

WASTE. See LEAKAGE.
WATER-BORNE DISEASES. See HEALTH.
WATER HAMMER. See HYDRAULICS.
WATERPROOFING. See RESERVOIRS also TANKS.
WATER RESOURCES. See HYDROLOGY.
WATER RIGHTS. See LEGAL.
WATER POWER.
Break in hydraulic turbine, Clinton, Mass. (W. E. Foss) xxxiii 143, 1919.
Power capacity of a stream without storage. (W. G. Raymond) xxii 184, 1908.
Power development at Cobble mountain, Springfield, Mass. (H. A. Moody) xlvi 356, 1932.
Power generation from the Delaware project. (G. R. Rich) lxiv 323, 1950.
Power in New England. (B. O. McCoy) lxiii 250, 1949.
Releases from Quabbin reservoir for power. (C. J. Guider) lxii 18, 1948.
Stream-flow data from a water power standpoint. (C. E. Chandler) xxi 464, 1907.
Water power at Holyoke, Mass. (A. F. Sickman) xviii 337, 1904.
See also LEGAL.
WATERSHEDS—FORESTATION.
Can high-value watershed lands be put to profitable use. (Discussion) xxxvi 279, 1922.
Care of large watersheds. (F. I. Winslow) xxxvii 385, 1923.
Forest conservation. (R. S. Kellogg) xxii 389, 1908.
Forest fire hazards. (R. E. Kendall) lxii 160, 1948.
Forest restoration in hurricane area. (A. C. Cline) lii 223, 1939.
Forestation of watersheds. (F. M. Rane) xxv 234, 1911; (S. K. Clapp) xxx 64, 1916; (P. W. Ayres) xxxvii 127, 1923.
Forestry and water works. (L. W. Goodrich) xxiv 345, 1910; E. S. Bryant) xxv 243, 1911; (J. W. Toumey) xxxi 247, 1917.
Forestry operations of the New Haven Water Co. (R. E. Hawley) lxi 235, 1947.
Forests and evaporating power of air. (P. W. Stickel) xlvii 229, 1933.
Forests and water supply in New England. (C. E. Bahre) xlvi 170, 1932.
Making watershed areas and sanitary districts coterminous. (R. E. Middleton) xiii 119, 1898-99.
Protection of catchment areas. (J. F. Skinner) xliii 1, 1929.
Recreation facilities near water supplies. (D. E. Moulton) li 370, 1937.
Reforestation of watershed, Croton. (T. C. Culyer) xxx 69, 1916.
Reforestation of North Adams watersheds. (J. P. Miller) xlviii 272, 1934.
Reforestation of the Quabbin reservoir project. (Russell Snow) lxi 34, 1947.
Sanitary improvement of a large drainage area in the Catskill region. (G. G. Honness) xxix 502, 1915.
Sanitation of watersheds. (A. D. Weston) xlviii 306, 1934.
Silvicultural control of the gypsy moth in watershed forest. (A. C. Cline) li 235, 1937.
Swamp drainage for watershed improvement. (E. S. Larned) xvi 38, 1902.
Watershed and forestation work, Bridgeport Water Co. (W. C. Pollitt) xlvii 223, 1933.
Watershed inspections in Conn., including problems of housing developments. (F. O. A. Almquist) lxiii 57, 1949.
Watershed practices of Bridgeport Hydraulic Co., and aerial watershed surveys. (F. B. Stillman) lxi 302, 1947.
Watershed sanitation. (D. C. Calderwood) lii 392, 1938.
Watershed sanitation. (M. S. Wellington) lii 343, 1938.
Wire fence and concrete post, N. Y. water supply. (R. N. Wheeler) xxx 124, 1916.
Work of the New England Forestry Foundation on water sheds. (H. A. Reynolds) lxii 133, 1948.
WELDING. See PIPES (JOINTS).
WELLS. See GROUND WATER also PUMPING.
YIELD OF CATCHMENT AREAS. See HYDROLOGY.

AUTHOR INDEX

ABBIATI, F. A.
Manufacture of alum ferric sulfate and sodium aluminate. liii 247, 1939.
ABBOTT, WILLIAM F.
Repairs to standpipe, Bath, Me. (With C. E. Carter) xxxv 318, 1921.
ADAMS, ARTHUR L.
Stave pipe. xiii 247, 1898-99.
ADAMS, GEORGE O.
Chlorination of new water mains. (With F. A. Kingsbury) li 60, 1937.
AGNEW, DWIGHT L.
Changing from flat rates to metered rates. l 340, 1936.
AGNEW SAMUEL A.
Pumping without attendance. xx 330, 1906.
AHLGREN, CLARENCE L.
Diesel pumping unit for Manchester, N. H., Water Works. lxiii 57, 1949.
ALLARD, THOMAS T.
Scituate Aqueduct, Providence, R. I. xl 546, 1926.
ALLEN, CHARLES A.
Placing a bridge in position. iii 197, 1888-89.
ALLEN, JOHN E.
Flood control structures. Part I, design. lxii 62, 1948.
ALLEN, KENNETH
Wood-stave conduit, Atlantic City, N. J. xviii 374, 1904.
ALLEN, RAYMOND C.
Gas-producer pumping plants, Manchester, Mass. xxv 1, 1911; xliii 56, 1929.
ALLEN, WILLIAM B.
(With Russell M. Jeffards)
Ground water conditions at Mashapaug Pond, Providence, R. I. lxii 38, 1948.
ALLIS, SOLON M.
Economy in water-works management. vi 161, 1891-92.
Erosion on the Pacific Slope. iii 158, 1888-89.
Pipe system, Malden, Mass. v 164, 1890-91.
Water supply in the arid Southwest. xii 261, 1897-98.
ALMQUIST, F. O. A.
Disposal of sludge and wash water in Conn. lx 344, 1946.
Double check valve maintenance. lii 379, 1938.
Experience with breakpoint chlorination in Conn. lx 269, 1946.
Public water supplies, Conn. (With Warren J. Scott) xliii 298, 1929.
Water chlorination experience. li 41, 1937.
Watershed inspection in Conn. lxiii 57, 1949.
ANDERSON, ALFRED B.
Economics of rehabilitation of 3" to 24" water mains. lxii 10, 1948.
ANDERSON, HERMAN
Aeration in water treatment. xlvi 373, 1932.
ANGELL, HARRY L.
Pictures and public relations at Westfield, Mass. liv 256, 1940.
ANTHONY, CHARLES
Turbidimeter. xvi 256, 1902.
ANTHONY, SIDNEY S.
Copper sulphate distributor. lxi 253, 1947.
Cushnoc Heights high service, Augusta, Me. l 267, 1936.
Lined and wrapped steel pipe, Augusta, Me. liii 274, 1939.
Standardization of hydrant markings. xlvii 103, 1933.
Submerged river crossing, Augusta, Me. lii 58, 1938.
ARMSTRONG, JAMES W.
Filter design. xxxix 254, 1925.
ARMSTRONG, ROGER W.
Construction of the Delaware aqueduct. lv 135, 1941.
ARNOLD, H. S.
Monel metal for waterworks use. xxxvi 86, 1922.
ASKETH, JORDAN S.
Ranney water collectors in New England. lxi 312, 1947.
ASTON, JAMES
Wrought iron. xlv 188, 1931.
ASTON, R. N.
Chlorine dioxide as a bactericide (With John F. Synan) xlii 80, 1948.
Progress report on chlorine dioxide. lxiv 1, 1950.
ATKINSON, EDWARD
Bog fuel. xviii 414, 1904.
Fuel. xvii 180, 1903.
Relation of water-works engineers to fire service of factories. xvii 58, 1903.
ATWOOD, THOMAS C.
Destroyer plant, Squantum, Mass. xxxiii 1, 1919.
AYRES, JOHN O.
Water works, Portsmouth, N. H. xiii 67, 1898-99.
AYRES, PHILLIP W.
Reforestation of watersheds. xxxvii 127, 1923.

BABB, CYRUS
Legal aspects of water-power development in Maine. xxvi 190, 1912.
BABCOCK, R. H.
Iron and manganese removal in Spaulding precipitator. lxiv 138, 1950.
BABCOCK, STEPHEN E.
Safety valves in distribution systems. iii 57, 1888-89.
Aeration of water supplies by natural canals and low dams. iii 35, 1888-89.
BAFFA, JOHN J.
Electrical and radioactivity methods of well logging for ground water supply. lxii 207, 1948.
BAILEY, GEORGE I.
Care of hydrants in winter. xiv 116, 1899-1900.
Effect of meters on consumption. xv 351, 1900-01.
BAILEY, HOWARD E.
Design and construction of standpipes and elevated tanks for distributing systems. lviii 356, 1944.
Use of activated carbon in treating open reservoirs. (With James Studley) lxi 135, 1947.
Water supply of Lunenburg, Mass. lv 475, 1941.
BAKER, M. N.
Brookline Water Works and F. F. Forbes. xlvi 77, 1932.
Meeting water main costs by assessments for benefits. xxxiii 186, 1919.
Uniformity ni municipal reports. xv 189, 1900-01.
Water supply and disease, Burlington, Vt. xx 163, 1906.

BALL, PHINEAS
Experience with a sand blast. iii 158, 1888-89.
Soils from which water supplies may be drawn. iii 29, 1888-89.
BALLOU, ARTHUR F.
Hydrant connections and control of dual mains. lii 81, 1938.
BANCROFT, LEWIS M.
Iron removal plant, Reading, Mass. xi 295, 1896-97.
BARBOUR, FRANK A.
Experiences with the Public Works Administration—a symposium. (With H. J. Lockwood, A. L. Shaw, W. J. Scott, Earl Devendorf and A. D. Weston.) xlix 22, 1935.
Insurance rates and water service. xxii 322, 1908.
Leakage from pipe joints. xxx 439, 1916.
Little Quittacas intake. New Bedford, Mass. xxxix 370, 1925.
Peabody, Mass. xxi 348, 1907.
Public ownership and improvements. Bridgewater, Mass. xli 1, 1927.
Standpipe, Attleboro, Mass. (With G. H. Snell) xx 302, 1906.
Water supply, Camp Devens, Mass. xxxii 145, 299, 1918.
BARNES, HOWARD T.
Ice formation. xxiv 576, 1910.
Thermit for ice troubles. xl 312, 1926.
BARNES, WILLIAM T.
Arched masonry dam, Las Vegas, N. M. xxvi 356, 1912.
Distribution reservoir, Dayton, O. (With Leonard Metcalf) xxxiii 219, 1919.
BARROWS, FRANK C.
Purification of Bridgeport water supply. xlvii 219, 1933.
BARROWS, HAROLD K.
Estimating steam flow in New England. xix 437, 1905.
Water hammer in pipe lines. xlv 72, 1931.
Water supply, Fall River, Mass. xxx 46, 1916; xxxvi 549, 1922.
BARRUS, GEORGE H.
Calorific value of fuel. x 48, 1895-96.
Economy of pumping engines. xiii 163, 1898-99.
BARTRAM, GEORGE C.
Reinforced concrete pipe. xxxiv 312, 1920.
BASSETT, CARROLL P.
Standpipe, Atlantic Highlands, N. J. vii 215, 1892-93.
BATCHELDER, GEORGE W.
Automobile for efficiency. xxviii 281, 1914.
Reservoirs, Worcester, Mass. xxxvii 392, 1923.
Trenching machine experiences. xxxi 486, 1917; xxxiv 815, 1920.
BAYLIS, JOHN R.
Filter bed troubles and their elimination. li 1, 1937.
Filter operation and maintenance. liv 393, 1940.
BEACH, D. N.
Water in its higher relations. iii 133, 1888-89.
BEALS, JOSEPH E.
Painting standpipe, Middleboro, Mass. iii 157, 1888-89.
Raising pipes in trenches. xx 244, 1906.
BEAN, ELWOOD L.
Five years' water purification, Providence, R. I. xlv 334, 1931.
Iron coagulation and coagulants. xlvii 273, 1933.
Operation of filtration plant, Providence, R. I. (With J. W. Bugbee) xli 399, 1927.
Providence water treatment. xlix 406, 1935.
BECK, FREDERIC E.
Increase of available supply, Utica, N. Y. xxxviii 232, 1924.
Metering fire services. xxxiv 125, 1920.
BEHNEY, C. C.
Meters and other equipment. xxxviii 294, 1924.
BEHR, HERMAN
Plugging up leaks. lxi 220, 1947.
BEHRE, C. EDWARD
Forests and water supply in New England. xlvi 170, 1932.
BEISEL, N. J.
Additional water supply, Pottsville Water Co., Pottsville, Pa. xxxix 47, 1925.
BELKNAP, JOHN B.
Areal mean precipitation of drainage areas. xlvi 272, 1932.
BENNETT, D. H.
Water supply at advance bases of the U. S. Navy. lviii 51, 1944.
BENSON, C. BEVERLEY
A statistical method for the estimation of average service life. lvi 390, 1942.
BESSELIEVRE, EDMUND B.
Mechanically cleaned sedimentation basins. xli 52, 1927.
BETNAT, A.
Extension of water supply, Geneva, Switzerland. (Translated by G. M. Fair) xlix 366, 1935.
Water supply, Geneva, Switzerland. (With G. C. Whipple) xxxv 22, 1921.
BETTON, JAMES M.
Pumping engines for small plants. xiii 218, 1898-99.
Water supply report of 1883. New York, N. Y. xviii 254, 1904.
BIBBY, BASIL G.
Fluorides and dental decay. lviii 101, 1944.
BILLINGS, H. J.
Hi-co, a new tar coating to maintain high coefficient. lv 54, 1941.
BILLINGS, WILLIAM R.
Tanks for supplying water closets and hot water boilers. 51, Trans. 1885.
BINGHAM, C. A.
Unaccounted for water, Norwood, Mass. xlvi 201, 1932.
BISER, D. BENTON
Design of distribution systems. (With V. B. Siems) xliii 284, 1929.
BLAIR, CLARENCE M.
Supervision of dams and reservoirs in Connecticut. lv 12, 1941.
BLAKE, EDMUND M.
Pitometer. xx 152, 1906.
BLAKELEY, GERALD W.
Transite pipe. li 317, 1937.
BLATT, MAX
Laying water pipes in congested streets, New York, N. Y. xxix 513, 1915.
BLOCHER, C. H.
Explosives, types and uses. liv 191, 1940.
BOARDMAN, NELSON
Field tests of large meters. xlvii 129, 1933.
BOEHM, A. M.
Internal combustion engines in water works and sewage plants. lx 27, 1946.

BOGGS, R. W.
Oxy-acetylene process in the piping field. xliii 44, 1929.
BOGREN, GEORGE C.
Relative efficiency of activated carbon and aeration in the removal of tastes and odors. lvi 184, 1942.
BOLLING, CHARLES E.
Water works, Richmond, Va. iv 39, 1889-90.
BOND, HORATIO
Water supplies for air-raid fires. lviii 35, 1944.
BOOTH, GEORGE W.
Fire protection classification. xlvii 190, 1933.
High pressure fire systems. xxxvi 495, 1922.
Motor pumpers. lii 461, 1938.
BOWERS, GEORGE
Tube wells, Lowell, Mass. ix 67, 1894-95; x 226, 1895-96; xiii 30, 1898-99.
Underground water. xvii 127, 1903.
BOWMAN, F. M.
Water tank and tower, East Providence, R. I. xix 55, 1905.
BOWMAN, JOHN
British water works practice. liii 385, 1939.
Water supply in war time. lv 483, 1941.
BOYCE, W. C.
Tests by tubular wells of available water. iii 26, 1888-89.
BOYD, GEORGE E.
Spun bituminous pipe coatings in the United States. li 393, 1937.
BRACKETT, DEXTER
Capacity of steam fire engines, hydrants, and hose, Boston, Mass. ix 151, 1894-95.
Measurement, consumption and waste of water, Metropolitan Water District. xviii 107, 1904.
Raising or lowering large water pipes. iii 198, 1888-89.
Water pipes, Metropolitan Water Works. xiii 325, 1898-99.
Water supply at Boston Fire, Nov. 23, 1889; iv 182, 1889-90.
Water waste. i Dec. 2, 1886-87.
BRADBURY, E. G.
Allowable leakage from mains. xxviii 315, 1914.
BRADBURY, RICHARD R.
Scituate Tunnel, Providence, R. I. xl 535, 1926.
BRADFORD, WILLIAM A.
Range boiler explosions. xxxvii 406, 1923.
BRADLEY, LEON A.
Training of technical consultants for chemical and bacterial contamination. lvi 271, 1942.
BRAINARD, FRANK
Distribution system, Hartford, Conn. xxxi 581, 1917.
BRANN, WALLACE R.
Siphon operation on main supply line. (With C. W. Sherman) xxxv 36, 1921.
BRASHEARS, M. L., JR.
Cooperative ground-water investigation in Mass. lvi 152, 1942.
BREHM, GEORGE C.
Waterproofing concrete standpipe, Waltham, Mass. xxxviii 297, 1924.
BREWER, BERTRAM
Covered reservoir, Waltham, Mass. xxi 325, 1907.
Public control over new streets for water main extensions. xxxiii 436, 1919.
Rate revision in municipal works. xxxii 1, 1918.
BRIGHAM, HAROLD L.
Introduction to transite pipe. li 285, 1937.
Some phases of public relations. liv 85, 1940.
BRISTOL, THEODORE L.
Operating expenses under post-war conditions. lxiv 129, 1950.
Rate structures. lii 70, 1938.
BROADHURST, FRANK S.
New priming systems for centrifugal pumps. liv 89, 1940.
Suction booster for centrifugal pumps. xxxviii 119, 1924.
BROOKS, CHARLES F.
New England rainstorm, Nov. 3-4, 1927. (With J. H. Weber) xlii 91, 1928; xliv 106, 1930.
Rainfall of New England. xliv 1, 1930.
BROOKS, FREDERICK
Gallons vs. liters and cubic meters. xvii 258, 1903.
BROWN, A. W. F.
Card system of service locations. ix 226, 1894-95.
Looking backward—a symposium. (With J. C. Chase, B. I. Cook, L. M. Hastings, J. S. Maxcy, Dwight Porter and J. C. Whitney.) xlvi 66, 1932.
Meter records for small water works. xxx 427, 1916.
BROWN, J. HENRY
Flushing street mains. 70, Trans. 1885.
BROWNE, ROBERT L.
Thermit pipe welding. xlii 21, 1928.
BROWNELL, E. E.
Electrolysis. xiv 363, 1899-1900.
BRUSH, CHARLES B.
Aeration and filtration. 11 Sept. 71, 1887-88.
BRUSH, WILLIAM W.
An appraisal of P.W.A. and W.P.A. water supply work in New England. liv 34, 1940.
Clarification of Catskill supply by coagulation and sedimentation. xlii 65, 1928.
Cost of distribution systems. liii 278, 1939.
Emergency protection of public works and utilities. lv 48, 1941.
Insulation resistance of high pressure fire service motors. xxxiii 337, 1919.
Operation of New York City's water supply system. xlv 181, 1931.
Water supply, New York, N. Y. xxiii 371, 1909.
Water waste prevention, New York, N. Y. xxvii 407, 1913.
BYRAN, KIRK
Geologic features in ground water supply, New England. l 222, 1936.
BRYANT, EDWARD S.
Forestry. xxv 243, 1911.
BUGBEE, JULIUS W.
Operation of filtration plant, Providence, R. I. (With E. L. Bean) xli 399, 1927.
Water treatment methods, Providence, R. I. xxxviii 244, 1924; xl 464, 1926.
BULOW, C. L.
Corrosion of copper and copper base alloys in fresh water. lix 163, 1945.
BUNKER, GEORGE C.
Covering service reservoirs for filtered or ground waters. (With A. G. Nolte) xxxvii 261, 1923.
Water supply problems in the tropics. l 1, 1936.

BURDEN, R. P.
(With G. M. Fair, G. H. Conant and J. C. Morris.)
Water disinfecting tablets lviii 270, 1944.
BURDICK, CHARLES B.
Infiltration galleries, Des Moines, Ia. xxxviii 203, 1924.
BURNHAM, H. A.
Charges for private fire protection. xxxviii 111, 1924.
BUSHWAY, WALTER B.
Brookline's spheroidal tank, Brookline, Mass. liv 76, 1940.
Size of service pipes and meters. lviii 317, 1944.
BYERS, HORACE R.
Flood producing storms, Atlantic seaboard. (With M. W. Hayes) li 207, 1937.
Meteorological conditions during floods. li 210, 1937.

CADY, FRANK L.
Filtration methods and results, Providence, R. I. xxxii 21, 1918.
CAIRD, JAMES M.
Purification plant, Rochester and Lake Ontario Water Co., Rochester, N. Y. xxiv 503, 1910.
Taste and odor control in public water supplies. xlix 149, 1935.
CAIRNS, R. A.
Shepaug Tunnel, Waterbury, Conn. xliii 258, 1929.
CALDERWOOD, D. C.
Historical notes on cast iron pipe, Nashua, N. H. xlvii 124, 1933.
Watershed sanitation. lii 392, 1938.
CALDWELL, JOHN S.
Grading fire defenses of municipalities. xxxv 1, 1921.
CALVERT, JOHN T.
American and English water-works practice. xlvi 229, 1932.
CAMP, THOMAS R.
Corrosiveness of water to metals:
Part I. A Study of electro chemical equilibria. lx 189, 1946.
Part II. Practical application of the theory. lx 282, 1946.
Hydraulic analysis of distribution systems by electric analyser. (With H. L. Hazen) xlviii 383, 1934.
Hydraulics of distribution systems. lvii 334, 1943.
Porous plates for filter bottoms. xlix 1, 1935.
CAMPBELL, ELMER W.
Public water supplies of Maine. xli 99, 1927.
Roadside water supplies. xlix 182, 1935.
CAMPBELL, E. W.
Okinawa water treatment plants. lxi 50, 1947.
CANNING, O. A.
Filtration, Burlington, Vt. xxxvii 396, 1923.
CAPRON, JOHN D.
Soil corrosion tests. U. S. Bureau of Standards. xli 81, 1927.
CARLTON, LELAND G.
Funds for water-works purposes. lii 124, 1938.
Management of a municipally owned water works. xlvii 343, 1933.
CARPENTER, GEORGE A.
Saving water and conserving coal. xxxii 198, 1918.
CARPENTER, J. D.
Flow test on 30" steel pipe lined with bitumastic enamel in 1932. (With George M. Roads, Jr.) lvi 8, 1942.
CARRITT, JEANNE B.
Contamination of water supplies by radio active substances. (With J. Carrell Morris) lxii 1, 1948.
CARTER, CLARENCE E.
Analysis of flow in pipe network by method of balancing flows. (With Scott Keith) lix 273, 1945.
Repairs to standpipe, Bath, Me. (With W. F. Abbott) xxxv 818, 1921.
CASAGRANDE, ARTHUR
Seepage through dams. li 131, 1937.
CASSIDY, W. E.
Viability of bacteria in the presence of phosphates. (With J. A. McCarthy) lvii 287, 1943.
CAVALLIER, C.
Life of cast iron pipe. xviii 218, 1904.
CHACE, GEORGE F.
Artesian well experiment, Taunton, Mass. iv 221, 1889-90.
Care of mains. v 131, 1890-91.
Collecting meter rates. iv 44-230, 1889-90.
Direct pumping system, Taunton, Mass. vi 67, 1891-92.
Eternal vigilance the price of good water. ix 147, 1894-95.
Handling fires while changing mains. x 230, 1895-96.
Laying a 16" main across a stream. ix 103, 1894-95.
Service pipe defects and their remedy. xii 41, 1897-98.
Sixteen inch direct river pipe, Taunton, Mass. vi 179, 1891-92.
CHAMBERLAIN, N. S.
Chemical aspects of breakpoint chlorination. (With A. E. Griffin) lv 371, 1941.
CHANDLER, CHARLES E.
State control of dams and reservoirs. xxvi 173, 1912.
Stream flow data, Sudbury, Nashua, and Merrimac rivers. xxii 409, 1908.
Stream flow data from water-power standpoint. xxi 464, 1907.
CHANDLER, HAROLD C.
Corrosion problem. xlviii 345, 1934.
Operation, Greenwich, Conn., filter plant. xlv 351, 1931.
Operation of rapid sand filters, Cambridge, Mass. (With M. C. Whipple) xli 218, 1927.
CHANG, SHIH LU
Dynamics of water chlorination. (With Gordon M. Fair and J. Carrell Morris) lxi 285, 1947.
Oxidation potential measurements in determining the concentration of germicidally active chlorine. lix 79, 1945.
CHAPLIN, WINFIELD S.
Water in Japan. i Dec. 20, 1886-87.
CHARNOCK, PERCY C.
Coordinating the fire service. lvi 53, 1942.
Required fire flows. l 249, 1936.
Water and fire department contacts. liii 337, 1939.
CHASE, E. SHERMAN
Anaboena in Kenoza Lake, Haverhill, Mass. lxi 128, 1947.
Control of "Red Water" and tuberculation of mains at Falmouth, Mass. lvii 173, 1943.

Copper sulphate treatment, Rockport, Mass. xxxviii 48, 1924.
Danger to sanitary water quality. xxxvii 16, 1923.
Economics of water purification. (With A. L. Shaw) lii 131, 1938.
Filtration plant, Greenwich Water Co., Greenwich, Conn. xlii 396, 1928.
Modern aspects of water purification. xlvii 451, 1934.
Observations of English water-works practice. lxiii 315, 1949.
Pollution of well supplies. liii 318, 1939.
Protection of public water supplies, a symposium (abstract). lvi 35, 1942.
Rapid sand filters, Lawrence, Mass. (With A. L. Shaw) lii 412, 1939.
Responsibility of water quality. liii 191, 1939.
Sanitary scoring of water supplies. xxxix 229, 1925.
The evolution of a small system, Rockport, Mass. (With George C. Houser) lvi 335, 1942.
Water filtration — present practice and trends. lviii 344, 1944.
Way Out. xlvii 207, 1933.
CHASE, H. M.
Displacement pumps driven by Diesel engines. xxxvii 163, 1923.
CHASE, HARVEY S.
Depreciation in water works accounts. xxiv 305, 1910.
CHASE, JOHN C.
Covered reservoir, Albany, Ga. viii 155, 1893-94.
Looking backwards—a symposium. (With A. W. F. Brown, B. I. Cook, L. M. Hastings, J. S. Maxcy, Dwight Porter, and J. C. Whitney.) xlvi 66, 1932.
Standpipe, Wilmington, N. C. viii 68, 1893-94.
Water rates. xvii 174, 1903.
CHASE, W. G.
Reinforced concrete pipe. xxxvi 102, 1922.
CHASE, WALTER H.
Mystic Valley, Conn., filtration plant. (With T. B. Ray) l 325, 1936.
CHEVALIER, WILLARD T.
Public works for economic stabilization. xlviii 412, 1934.
CHOATE, CHARLES F., JR.
Riparian water rights and diversion suits. xxiv 187, 1910.
CHRISTENSON, JAMES A.
Real estate acquisition for M.D.C. supply in the Swift River and Ware River watersheds. liv 194, 1940.
Real estate acquisitions for Metropolitan Boston's water supply. lix 132, 1945.
CHURCH, S. R.
Tars. xxxvi 571, 1922.
CLAPP, FREDERICK O.
Color of waters, Scituate Reservoir, Providence, R. I. xl 530, 1926.
CLAPP, SIDNEY K.
Forestation of watersheds. xxx 64, 1916.
CLARK, ARTHUR T.
Water main cleaning. xlvii 184, 296, 1933.
CLARK, HARRY W.
Copper sulphate and filtration. xix 503, 1905.
Disinfection, an adjunct to purification. (With S. De M. Gage) xxiii 302, 1909.
Double filtration. xxiv 585, 1910.
Double filtration, South Norwalk, Conn. xxx 86, 1916.
Effect of pipes of different metals on water quality. xli 31, 1927.
Filters charged with aluminum or ferric hydroxide. xxxvi 385, 1922; xxxviii 84, 1924.
Filtration, Lawrence, Mass. xiv 82, 1899-1900.
Iodine and water supplies. xxxix 204, 1925.
Iodine in Massachusetts supplies. xlii 132, 1928.
Iron in ground water. l 229, 1936.
Iron removal from ground waters. xi 277, 1896-97.
Removal of color, organisms and odor. xvii 1, 1903.
Soil corrosion report. xlix 110, 1935.
Stream pollution by manufacturing wastes. xv 500, 1900-01.
Summary of corrosion experiments. liii 197, 1939.
Typhoid and Massachusetts water supplies. xxxiv 203, 1920.
CLARK, HORACE L.
Water treatment in the Sanford Water District, Sanford, Maine. lvi 59, 1942.
CLARK, ROBERT M.
Military use of public water supplies. lix 237, 1945.
CLARKE, E. W.
Water supply, Panama. xxvi 1, 1912.
CLASSON, W. G.
Emergency water supply, Leominster, Mass. (With C. W. Sherman) xxxix 450, 1925.
Rebuilding No-Town reservoir dam. xlv 178, 1931.
Relief of unemployment by water-works activities, Leominster. xlvi 217, 1932.
CLINE, A. C.
Forest restoration in hurricane area. liii 223, 1939.
Silvicultural control of the gypsy moth in watershed forests. li 235, 1937.
COBB, EDWIN B.
Water supply in the Asiatic Pacific Theater. lx 54, 1946.
CODD, WILLIAM F.
Connecting lead services. ix 187, 1894-95.
Filter, Nantucket, Mass. viii 171, 1893-94.
COFFIN, FREEMAN C.
Cast iron pipe. xv 38, 1900-01.
Covered reservoirs. xiv 252, 1899-1900.
Financial management of water works. xi 63, 1896-97.
Friction in force mains. x 234, 1895-96.
Gas, gasoline and oil engines for pumping machinery. xiii 206, 1898-99.
Meter rates. xviii 55, 1904.
Standard pipe flanges. vi 48, 1891-92.
Standpipes. vii 202, 1892-93.
COFFIN, GEORGE W.
The new Clinton, Maine, water system and observations on ground water. lxii 250, 1948.
Water supply for the Logan Airport, East Boston, Mass. lxiv 45, 1950.
COGGESHALL, R. C. P.
Anchor ice. x 265, 1895-96.
Fall of water tower, Fairhaven, Mass. xv 522 1900-01.
Leak in main pipe. xxi 487, 1907.
Log book for electrically driven pumps, New Bedford, Mass. xxxii 178, 1918.
Portable platform for trenching. ix 125, 1894-95.
Reservoir cleaning, New Bedford, Mass. iv 210, 1889-90.

Temporary dam, New Bedford, Mass. iii 200, 1888-89.
COLBURN, WELLEN H.
Purchased power for pumping stations. lv 182, 1941.
COLE, E. SHAW
Application of the pitometer to distribution systems. lviii 74, 1944.
COLE, EDWARD S.
Water consumption statistics. xxv 66, 1911.
COLEMAN, J. O. R.
Electric grounding on water pipes. li 277, 1937.
COLLINS, W. D.
Industrial uses of water. lii 396, 1938.
COLLINS, MICHAEL F.
Filter operations, Lawrence, Mass. (With Morris Knowles and A. D. Marble.) xxii 193, 1908.
Lawrence filter. xvii 288, 1903.
CONANT, G. H.
Water disinfecting tablets. (With G. M. Fair, R. P. Burden, J. C. Morris.) lviii 270, 1944.
CONANT, H. F.
Standpipe, Attleboro, Mass. xxix 179, 1915.
CONARD, WILLIAM R.
Cast iron pipe specifications. xxi 54, 367, 1907.
Fire hose, water pressures and hydrant spacings. xxxix 79, 1925.
History of cast iron pipe. liii 166, 1939.
Insulation of pipe joints. xxvii 228, 1913.
Manganese bronze for valve stems. xxxvi 32, 1922.
Manufacture and inspection of cast iron pipe. xxxv 205, 1921.
CONROY, WATER C.
The financing of main extensions. lx 1, 1946.
COOK, BYRON I.
Detecting water waste. vii 22, 1892-93.
Looking backward—a symposium. (With A. W. F. Brown, J. C. Chase, L. M. Hastings, J. S. Maxcy, Dwight Porter, and J. C. Whitney.) xlvi 69, 1932.
Reservoir and dam, Woonsocket, R. I. xii 20, 1897-98.
Standpipes. xiv 124, 1899-1900.
COOK, H. J.
Lining a concrete reservoir. lvi 70, 1942.
CORLISS, J. M.
Gypsy moth control with D.D.T. lxii 191, 1948.
COUCH, A. D.
Diesel engine pumping equipment. xliv 458, 1930.
COULTERS, A. B.
Installation and care of Venturi meters. xliii 281, 1929.
COVIL, WILLIAM F.
Alignment charts for pipe lines. liii 103, 1939.
COWAN, EDWARD H.
Detection and prevention of water waste, Marion, Ohio. xviii 185, 1904.
COWLES, M. W.
Plumbing systems and cross-connections. li 261, 1937.
What is the National Plumbing Laboratory? lv 46, 1941.
COX, C. D.
Two inch cast iron pressure pipe. liv 294, 1940.
COX, C. R.
Water treatment in New York State. liii 444, 1939.
CRAFTS, N. HENRY
Thickness of cast iron pipe. iii 175, 1888-89.
CRAIG, EARL C.
Real estate and damage settlements, Scituate, Reservoir, Providence, R. I. xl 503, 1926.
CRANDALL, FRANK H.
Assessment and collection of water rates. xiv 133, 1899-1900.
Charges for public use of large streams. xi 344, 1896-97.
Water loss from pipes. xii 245, 1897-98.
Water works, Burlington, Vt. x 150, 1895-96.
CRILLY, PATRICK F.
Cement pipe. v 50, 1890-91.
CROSBY, EVERETT U.
Eliminating the conflagration hazard. xv 97, 1900-01.
CROSBY, IRVING B.
Geology and ground water supplies of New England. xlvii 74, 1933.
Ground water in pre-glacial buried valleys, Mass. liii 372, 1939.
CROWELL, HERBERT C.
Joint leakage tests, Haverhill, Mass. xlvii 122, 1933.
CUDDEBACK, ALLEN W.
Care and maintenance of meters. xxvii 471, 1913.
CULYER, THURSTON C.
Reforestation of Croton watershed, New York, N. Y. xxx 69, 1916.
CUTTER, VICTOR M.
New England Regional Planning Commission. xlix 72, 1935.

DANA, GORHAM
Private fire protection and insurance rules. xxii 465, 1908.
DANFORTH, GEORGE C.
Military and emergency water supplies. xli 129, 1927.
DANIELSON, W. A.
Loss of head in rapid sand filters. (With R. G. Tyler and M. LeBosquet, Jr.) xl 322, 1926.
DAPPERT, ANSELMO F.
Flood of March, 1936, New York State. ii 69, 1937.
Flood of 1935, New York State. xlix 376, 1935.
DARLING, EDWIN
Filtration. iii 165, 1888-89.
Water works management. ii Sept 7, 1887-88.
DAVIS, CARLETON E.
Water supply, Isthmus of Panama. xx 252, 1906.
DAVIS, F. A. W.
Air lift test. xiii 51, 1898-99.
Electrolysis. xv 225, 1900-01.
DAVIS, W. E.
Moving a conduit. v 125, 1890-91.
DAVIS, WILLIAM MORRIS
Causes of rainfall. xv 338, 1900-01.
DEAN, F. W.
Economy of pumping engines. xviii 25, 1904.
Pumping engines. viii 85, 1893-94.
Pumping engines, Waltham, Mass. (With C. T. Main) xiv 171, 1899-1900.
Pumping station practice. xlii 109, 1928.
Specifications for pumping engines, St. Louis, Mo. xi 172, 1896-97.
Steam boilers. xxxvi 115, 1922.

DEAN, PAYNE
Electrification of gate valves. xxxvi 264, 1922.
DE CROW, D. A.
Unaflow pumping engines. xxxiii 535, 1919; xxxiv 195, 1920.
DEEVEY, EDWARD S., JR.
Spring overturn in stratified lakes. lx 182, 1946.
DENNETT, R. C.
Coöperation of fire and water departments. lv 23, 1941.
Reliability features of electrically operated pumping stations. (With G. L. Swan) xli 268, 1927.
DES BAILLETS, CHARLES J.
McTavish pumping station, Montreal, Que. xliii 32, 1929.
DEVENDORF, EARL
Experiences with Public Works Administration—a symposium. (With F. A. Barbour, H. J. Lockwood, A. L. Shaw, W. J. Scott, and Arthur D. Weston.) xlix 35, 1935.
Pollution of the Rochester, N. Y., supply through cross-connections. lv 216, 1941.
Water borne disease in New York State. xlvii 298, 1933.
DEWING, ARTHUR S.
Economic advantage of private ownership of water companies. xli 63, 1927.
DEYOE, D. H.
Pipe welding. xlii 25, 1928.
DICKEMAN, CHARLES T.
Water supply equipment and facilities for advance bases of the U. S. Navy. lviii 47, 1944.
DICKERMAN, ALBERT C.
East Providence Water Company. xliii 239, 1929.
East Providence Water Company, rate case. xliii 246, 1929.
DILLON, JAMES J.
Disaster protection of water supplies, Rhode Island. liii 212, 1939.
Improvements in Rhode Island water supplies. (With C. L. Pool) l 143, 1936.
DITTOE, W. H.
Typhoid epidemic, Salem, O. xxxv 335, 1921; xxxvi 262, 1922.
DIVEN, J. M.
Double disk type of valve. xxx 106, 1916.
DIXON, G. GALE
Corrosion of 36" steel force mains, Akron, O. xxxvi 157, 1922.
DOANE, ALFRED O.
Pumping stations, Metropolitan Water Works, Boston, Mass. xli 183, 1927.
Purchase of coal on efficiency basis. xxiv 277, 1910.
Steam pumping engines. xxxii 121, 1918.
Water pressure regulators. xx 1, 1906.
DOLE, RICHARD B.
Waters of the Great Lakes, quality. xxiii 254, 1909.
DONALDSON, WELLINGTON
Developments in water purification. xlii 372, 1928.
DONNELLY, RICHARD V.
Chlorination. xlii 79, 1928.
DORE, STANLEY M.
An inverted siphon for the Assabet River crossing of the Wachusett Aqueduct. lxii 1, 1949.
Chicopee Valley Aqueduct, Mass. lxiv 13, 1950.
Design and construction of pressure aqueduct for Boston, M.D.C. lv 315, 1941.
DORENBAUM, WILLIAM
Design of Bills Brook Dam, Barkhamsted Reservoir. l 302, 1936.
DOTEN, LEONARD S.
Water tower and standpipe, Fort Revere, Hull, Mass. xix 33, 1905.
DOULL, R. M.
Production of 84" prestressed concrete pressure pipe for Montreal. lxiii 29, 1949.
DRESSER, HERMAN G.
Pipes for distribution systems—present practice and trends. lviii 353, 1944.
DROWN, THOMAS M.
Aeration of natural waters. vii 96, 1892-93.
Analysis of water. ix 79, 1889-90.
Electrical purification of water. viii 183, 1893-94.
Filtration of natural waters. v 91, 1890-91.
Odor and color of surface waters. ii Mar 3, 1887-88.
Purification of water by freezing. viii 46, 1893-94.
DUDLEY, ARTHUR W.
Wood pipe in New Hampshire. xxx 318, 1916.
DUTTON, L. F.
Behavior of overloaded filters. lxii 95, 1948.
Groton, Conn., meets its growing demand for water. lxiv 91, 1950.

EAMES, DAVID D.
Economics of pumping equipment. lii 214, 1938.
Needham Street boiler plant. xlviii 102, 1934.
EARL, ELLIOTT
Diesel engine for pumping stations. xlvii 61, 1933.
EASTER, CHARLES W.
Collecting water bills. lii 67, 1938.
EATON, HARVEY D.
Extension of the water district idea in Maine. xxxi 196, 1917.
Maine water districts and appraisals. xix 147, 1905.
EDDY, HARRISON P.
Hydrogen-ion concentration in water purification. xxxv 385, 1921.
Quality of impounded water supplies. xlvi 396, 1932.
EDWARDS, GAIL P.
Safe and satisfactory water from a chemical standpoint. lxi 260, 1947.
EDWARDS, LE ROY
Pipe line welding by oxy-acetylene gas. xlii 3, 1928.
EGLEE, CHARLES H.
Hollow concrete dams. xxii 20, 1908.
Personal character and practical efficiency. xxix 214, 1915.
ELDREDGE, E. D.
Economy in pipe lines for small water works. xxxiv 91, 1920.
Magnetic dipping needle for locating service and gate boxes. xxviii 294, 1914.
ELLIS, GEORGE A.
Discharge of mains as determined by pressure gage. i Sept. 19; Dec. 18, 1886-87.
Fire protection by direct high pressure pumps. vii 27, 1892-93.
ELLIS, RICHARD H.
Changes in practice and improvement in water supply, Newton, Mass. xlvii 76, 1934.
Hydraulic investigation of a small water works system and main cleaning. liv 155, 1940.

ELLMS, JOSEPH W.
Copper sulphate for the purification of hard and turbid waters. xix 496, 1905.

ELLSWORTH, SAMUEL M.
Federal construction subsidies for small public water supplies. liv 49, 1940.
New Sand Wash Brook Dam and reservoir, Pittsfield, Mass. lii 190, 1938.

ELWOOD, FREDERICK T.
Water works, Rochester, N. Y. xxiv 492, 1910.

ENSLOW, L. H.
Modern water chlorination practice. xlviii 6, 1934.

ESTY, ROGER W.
Relining elevated reservoir with Gunite. lii 30, 1938.
Sizes of meters for services. li 245, 1937.
Water mains and cement lined pipe at Danvers, Mass. xlv 54, 1931.

EWING, CHARLES K.
(With James E. Fuller)
False presumptive tests for water treated with chlorine-ammonia. lix 244, 1945.

FAIR, GORDON M.
Determination of odors and taste in water. xlvii 248, 1933.
Engineers and engineering in the Mass. State Board of Health. lix 32, 1945.
Flush valve. xxxv 137, 1921.
Hydraulic investigation of distribution systems in field and office. lv 271, 1941.
Hydraulic service characteristics of small pipes. (With M. C. Whipple and C. Y. Hsiao.) xliv 499, 1930.
Pollution of industrial ground water supply. liii 316, 1939.
The dynamics of water chlorination. (With Shih Lu Chang and J. Carrell Morris.) lxi 285, 1947.
Water disinfecting tablets. (With R. P. Burden, G. H. Conant, J. C. Morris.) lviii 270, 1944.
Storrow's treatise on water works 1835. lix 124, 1945.

FAIRHALL, L. T.
Toxic contaminants of drinking water. lv 400, 1941.

FANNING, JOHN T.
Hydraulic pumping machinery. i Sept. 34, 1886-87.

FARNHAM, ELMER E.
Water hammer. vi 57, 1891-92.

FARWELL, C. A.
Granville dam, Westfield, Mass., design. xliii 164, 1929.

FAXON, W. L.
Drinking fountains. v 111, 1890-91.

FEEMSTER, ROY F.
Infectious hepatitis. lx 32, 1946.

FELTON, CHARLES R.
Water supply, Brockton, Mass. xx 385, 1906.

FERGUSON, R. E.
Testing large meters. xliii 382, 1929.

FERRIS, JOHN G.
Cooperative ground water investigations in Connecticut. lvi 157, 1942.

FIELD, FREDERICK E.
Filtration works, Montreal, P. Q. xxxix 213, 1925; xlii 359, 1928. (With J. H. Harrington)

FIELD, GEORGE W.
Eels in water works. xv 390, 1900-01.

FIELD, H. L.
Slow sand filtration plant, Greenfield, Mass. li 173, 1937.

FILBY, E. L.
Activities of the Committee on Water and Sewage Works Development. lviii 1, 1944.

FINNERAN, GEORGE H.
Breaks in water mains, service pipes and hydrants—a symposium. (With F. A. McInnes, S. E. Killam, S. H. Taylor, F. A. Marston, and C. W. Mowry.) xlv 40, 1931.
Cold weather troubles—a symposium. (With P. R. Sanders, W. F. Sullivan, and F. H. Kingsbury.) xlviii 321, 1934.
Emergency gang in water service. xxx 413, 1916.
Leaks and litigation. xli 201, 1927.
Maintenance of gate valves, Boston. xlvii 115, 1933.
Pipe jointing compounds. xxxvii 84, 1923.
Practical water works matters. xxxiv 272, 1920.
Solid-wedge valve, Boston, Mass. xxx 101, 1916.
Thawing frozen water pipes. xlv 44, 1931.

FISHER, EDWIN A.
Rochester, N. Y. xxiv 473, 1910.

FITZGERALD, DESMOND
Capacity of Sudbury River and Lake Cochituate Reservoirs. ii Dec. 12, 1887-88.
Catskill supply, New York, N. Y. xxxii 393, 1918.
Croton Aqueduct. iii 161, 1888-89.
Rainfall available for water supply. i Sept. 41, 1886-87.
Sinking fund tables. vi 185, 1891-92.

FITZPATRICK, E.
Copper sulphate for water works use. liii 261, 1939.

FLENTJE, M. E.
Unusual methods of water purification. xliii 38, 1929.

FLENTJE, MARTIN E.
Telling the public about "Water". lxiv 302, 1950.

FLINN, ALFRED D.
Protection of steel pipes, Catskill Aqueduct, N. Y. xxv 345, 1911.

FOLWELL, A. PRESCOTT
Maximum water consumption in American cities. xlvi 389, 1932.

FORBES, FAYETTE F.
Algae in reservoirs and ponds. iv 196, 1889-90.
Automobile for business. xxii 38, 1908.
Cement-lined service pipes. xv 48, 1900-01.
Chara fragilis (experience). x 252, 1895-96.
Compulsory meterage, Brookline, Mass. xx 247, 1906.
Covered reservoirs, Brookline, Mass. viii 113, 1893-94.
Driven wells. v 141, 1890-91.
Driven wells, Brookline, Mass. xi 195, 1896-97.
Frictional head in force-mains. vi 164, 1891-92.
Improvement in pumping engines. xiii 157, 1898-99.
Lead poisoning. xv 58, 1900-01.
Taste and odor imparted to water by some algae and infusoria. vi 90, 1891-92.

FORBES, HOWARD C.
Electrolysis of water pipes. (With C. A. Stone) ix 25, 1894-95.

FOSS, WILLIAM E.
Break in hydraulic turbine, Clinton, Mass. xxxiii 143, 1919.
FOSTER, E. H.
Superheated steam in pumping engines. xix 76, 1905.
FOSTER, JOEL
Fire protection: how paid? xii 270, 1897-98.
FOWLER, CHARLES E.
Slow sand filter, Poughkeepsie, N. Y. xii 209, 1897-98.
FREEMAN, JOHN R.
Arrangement of hydrants and water pipes for fire protection. vii 49, 152, 1892-93.
Bursting of the Portland Reservoir. viii 148, 1893-94.
Fire streams. iv 95, 1889-90.
FRENCH, A. M.
Water supply, Holyoke, Mass. xviii 396, 1904.
FRENCH, A. N.
Small water works laboratory. xxxii 64, 1918.
FRENCH, ARTHUR N.
Meter registration. xxi 33, 1907.
FRENCH, EDWARD V.
Desirable hydrant pressure. xxv 247, 1911.
Fire-service meters. xix 291, 1905.
Loss of pressure caused by meters in fire supplies. xii 73, 1897-98.
FUERTES, E. A.
Hydraulic laboratory, Cornell University. xiv 195, 1899-1900.
FULLER, FRANK L.
Covered reservoir, Franklin, N. H. v 160, 1890-91.
Covered reservoirs. xxiii 204, 1909.
Covering reservoir, Natick, Mass. xvii 383, 1903.
Laying 10" pipe, Leicester, Mass. iv 190, 1889-90.
Life of tarred service pipes. vii 221, 1892-93.
Sinking fund tables. xii 103, 1897-98.
Testing distribution systems. xi 330, 1896-97.
Water works, Franklin, N. H. vii 82, 1892-93.
Water works, Ware, Mass. ii Sept. 49, 1887-88.
Water works, Webster, Mass. ix 240, 1894-95.
Well supply, Waltham, Mass. vi 183, 1891-92.
FULLER, GEORGE W.
Relative applicability of sand and mechanical filters. xiv 32, 1899-1900.
FULLER, HARRY U.
Frost penetration. i 299, 1936.
Laying submarine pipe in Portland Harbor in winter. lvi 65, 1942.
Sebago Lake intake and conduit, Portland, Me. (With Leonard Metcalf and C. B. Mitchell.) xxxix 394, 1925.
Studies of frost penetration. liv 275, 1940.
Submarine pipe lines, Portland, Me. xxxvii 298, 1923; xliv 479, 1930.
FULLER, JAMES E.
Chlorine-ammonia treatment, Amherst, Mass. lviii 89, 1944.
False presumptive tests for water treated with chlorine-ammonia. (With Charles K. Ewing) lix 244, 1945.
FULLER, MYRON L.
Ground waters for public supplies. xxvii 233, 1913.
FULLER, WESTON E.
Loss of head in bends. xxvii 509, 1913.
FULTON, CREED W.
Pumps for small water works. xxiv 1, 1920.

GAGE, STEPHEN DE M.
Disinfection, an adjunct to purification. (With H. W. Clark) xxiii 302, 1909.
Public water supplies in Rhode Island. xl 117, 1926.
GAITENBY, JOHN W.
Operation of mechanical filtration plant, Evanston, Il. xxxi 619, 1917.
GALE, JAMES M.
Water works, Glasgow, Scotland. xiv 240, 1899-1900.
GALLAGHER, DAVID L.
Diesel practice for water works plants. lxiii 105, 1949.
GANZ, ALBERT F.
Electrolysis. xxxi 280, 1917.
GARDNER, EDWIN P.
Light for night work. vii 168, 1892-93.
GARDNER, JAMES R.
Submarine pipe lines at Portland, Maine. lix 148, 1945.
GARDNER, L. H.
Complaints. v 129, 1890-91.
GARRATT, J. E.
Copper sulphate treatment of reservoirs and effect on filter runs, Hartford, Conn. xxxvi 522, 1922.
Grouting rock foundations of dams, Hartford, Conn. xxxi 609, 1917.
GARRETT, JESSE
Making cast iron pipe. xi 27, 1896-97.
GEAR, PATRICK
Care of gates and hydrants. xxviii 298, 1914.
Leakage detection. xxviii 68, 1914.
GENTNER, WARREN A.
Domestic flow as affecting meter registration and water revenue. (With H. W. Griswold) xlvi 288, 1932.
Financing main pipe extensions, Hartford, Conn., Distribution system. lii 178, 1938.
Water filtration, Hartford, Conn. xlv 360, 1931.
GERHARD, WILLIAM PAUL
Driven wells, Mt. Washington Hotel, N. H. xviii 247, 1904.
Water service and fire protection of theatres. lx 77, 1894-95.
GERRISH, WILLIAM B.
Water softening plant, Oberlin, O. xix 422, 1905.
GIBBONS, MORTIMER M.
Prevention of phenol and other tastes at Rahway, N. J. xlv 6, 1931.
GIBBS, HARRY F.
Small pumping stations. xvi 167, 1902.
GIBSON, J. E.
Elevated tank, Charleston, S. C. xli 177, 1927.
GIBSON, J. S.
Edisto River, Goose Creek Tunnel Aqueduct, Charleston, S. C. lvi 102, 1942.
GIDLEY, HENRY T.
Fire in office and shop of the Fairhaven Water Company. xl 29, 1926.
Four disasters, Fairhaven, Mass. liv 391, 1940.
GIFFORD, FRANK J.
Electric thawing machine. xxxiv 114, 1920.
Inch-foot method for charging for fire protection service. xlvi 370, 1932.

GILCREAS, F. WELLINGTON
Action of water on materials for service pipes. xlix 170, 1935.
Dissolved oxygen and corrosion. li 380, 1937.
Experiments and control of corrosion, Newton, Mass. xlviii 105, 1934.
GILLETT, L. A.
The community facilities program of the Federal Works Agency. lix 348, 1945.
GINDER, CHESTER J.
Releases from Quabbin Reservoir for power. lxii 18, 1948.
GLOVER, ALBERT S.
Water-works records. iv 69, 1889-90.
GOFF, M. N.
Diesel pumping plant, Milford, Mass. lii 225, 1938.
Milford Water Co., considers cathodic protection. lv 58, 1941.
GOLDSMITH, CLARENCE
Cast iron pipe joints, Boston, Mass. xxviii 113, 1914.
Fire, Salem, Mass. (With F. A. McInnes) xxix 94, 1915.
Reasonable requirements for fire protection. xxiv 305, 1912.
Water supply in semi-arid regions of the U. S. xxvi 144, 1912.
GOODALE, LEON A.
Joint use of service trenches. xlix 372, 1935.
GOODMAN, JOSEPH
Water supply of New York City. lii 259, 1938.
GOODNOUGH, X. HENRY
Boating and fishing in reservoirs. xxxiv 151, 1920.
Copper sulphate for algae control. xix 525, 1905.
Examination of public water supplies. xiv 65, 1899-1900.
Extension of the Metropolitan Water District, Boston, Mass. xxxvi 189, 1922.
Rainfall in New England. xxix 237, 1915; xxxv 228, 397, 1921; xl 178, 1926; xliv 157, 1930.
Rainfall in New England storm of Nov. 3-4, 1927. xlii 150, 1928; xliv 119, 1930. 119, 1930.
Water supply of Southeastern Massachusetts. xxxvi 527, 1922.
GOODRICH, CHARLES C.
Insurance problems of water works companies. lxiii 45, 1949.
GOODRICH, L. W.
Forestry. xxiv 345, 1910.
GORMAN, ARTHUR E.
Changing trends and their effect on water utilities. lviii 225, 1944.
Mutual interests between the water-works and atomic-energy industries. lxiv 148, 1950.
The office of War Utilities Program for cooperation with the water industry. lvii 313, 1943.
Watching the weather in safeguarding water supplies. xliii 377, 1929.
Water a critical war material. lvi 302, 1942.
Water borne diseases in New England, 1920 to 1936. liii 473, 1939.
Water supply practice in Germany, 1945. lx 132, 1946.
GOSS, WILLIAM F. M.
"Snow" pumping engine, Indianapolis, Ind. xiii 49, 1898-99.
GOULD, JOHN A.
Recording gages. v 65, 1890-91.
GOURLEY, HAROLD J. F.
British water-works practice. l 345, 1936.
GOW, CHARLES R.
Quartermaster terminal, Boston, Mass. xxxii 362, 1918.
Quicksand. xxiv 171, 1920.
GOW, FREDERICK W.
Cement lined pipe. 113, Trans. 1885.
High service pipe river crossing. xii 195, 1897-98.
GOWING, EARLE H.
Back-filling trenches. xii 173, 1897-98.
Crossing a stream with a main pipe. v 135, 1890-91.
Reducing pressure on a gravity system. xvii 139, 1903.
Standard specifications for water works. vi 168, 1891-92.
GRAHAM, JAMES W.
Accounting for water districts. xlvi 196, 1932.
Portland Water District, Portland, Me. xliii 364, 1929.
GREENE, CHARLES E.
Operation of town water-works pumps. xlv 168, 1931.
Standby emergency pumping equipment. liii 178, 1939.
GREENLEAF, A. C.
Operating experience at the Groton, Conn., filter plant. lxiv 97, 1950.
GRIFFIN, A. E.
Chemical aspects of breakpoint chlorination. (With N. S. Chamberlain) lv 371, 1941.
Chlorination, a five year review. lviii 322, 1944.
Progress in breakpoint chlorination. lxi 145, 1947.
Disinfection of the Wanaque aqueduct. xlv 1, 1931.
Manganese in impounded water supplies. (With R. S. Weston) xlvii 40, 280, 1933.
GRIFFIN, S. P.
Laying a 30 inch supply main. vi 186, 1891-92.
GRIMES, E. L.
Water works, Troy, N. Y. xxii 164, 1908.
GRIMMER, ALLAN K.
Winter operation. liv 60, 1940.
GRINDLE, THEODORE W.
The Bar Harbor fire. lxii 154, 1948.
GRISWOLD, F. M.
Standard hose couplings. xxxiv 63, 1920.
Standardization of threads for fire hose couplings and fittings. xxxv 43, 1921.
GRISWOLD, H. W.
Better maintenance and sizing of water meters. liv 164, 1940.
Brook crossing and bridge crossing. xlvii 22, 1933.
Domestic flow as affecting meter registration and water revenue. (With W. A. Gentner) xlvi 288, 1932.
Master meters. li 203, 1937.
Maintenance of water meters. xliii 273, 1929.
Nepaug Dam, Hartford, Conn. xxxi 603, 1917.
GUNN, KENNETH E.
Water purification problems at Durham, N. H. lviii 255, 1944.
GWINN, DOW R.
Instructions to employees at pumping stations and filter plants. xxxiv 284, 1920.

HAGUE, CHARLES A.
Electric pumping plant. x 184, 1895-96.
HAINE, WILLIAM
Control of microscopic organisms. xxxii 10, 1918.
HALE, FRANK E.
Control of microscopic organisms. xliv, 361, 1930.
Katadyn treatment of water and swimming pools. (With Robert Shapiro) li 113, 1937.
Sanitation and purification of New York City's water supply. lv 62, 1941.
HALE, J. ELLIOTT
Failure of lower reservoir dam, Belfast, Me. lviii 69, 1944.
The State Sanitary Water Board in Maine. lxi 64, 1947.
HALE, RICHARD A.
Tubercles in iron and steel penstocks. x 244, 1895-96.
Water rights. xxi 248, 1907.
HALL, D. H.
Operation of Bridgeport water distribution system. xlvii 216, 1933.
HALL, FRANK E.
Street mains. 107, Trans. 1885.
HALL, HARRY R.
Water disinfection in Maryland. (With R. B. Morse) xxx 301, 1916.
HALL, HENRY C.
The War Department Civilian Protection School at Amherst, Mass. lvi 294, 1942.
HALL, JOHN O.
Modern plumbing. xv 525, 1900-01.
Municipal management of water-supply systems. xvii 9, 338, 1903.
HALL, RALPH P.
Pumping station equipment. lviii 348, 1944.
HALL, RODNEY D.
Diesel oil engines and displacement pumps. xxxvii 159, 1923.
Steam vs. oil. xxxvii 182, 1923.
HALLIHAN, J. P.
Activities of the Works Progress Adm. in water supply and distribution. lv 28, 1941.
HALPIN, HENRY E.
Automatic sprinkler systems. l 255, 1936.
Fire supply charges. xlix 345, 1935.
Tanks for service in high buildings. li 273, 1937.
HAMILTON, H. C.
Pipe thawing by electricity. xlviii 314, 1934.
HAMMATT, E. A. W.
Back-filling trenches. xii 160, 1897-98.
HANCOCK, JOSEPH C.
Risks of single supply main. vi 59, 1891-92.
Water hammer on main pipes. v 11, 1890-91.
HANN, VICTOR
Ozone treatment for the removal of taste, odor and color. lxi 247, 1947.
HANSEN, PAUL
Phenol tastes, Marquette, Mich. xxxix 320, 1925.
HARBESON, J. P., JR.
Diesel engine in a modern forge. xxxix 138, 1925.
HARDENBERGH, W. A.
Military field sanitation. lv 431, 1941.
HARKNESS, BRUCE
Pipe cleaning and lining, Buenos Aires. liii 284, 1939.
HARMON, DUDLEY
Post-war planning in industrial New England. lviii 24, 1944.
HARRINGTON, ARTHUR V.
Special equipment cross-connections. li 270, 1937.
HARRINGTON, JOHN H.
Filtration works, Montreal, Que. (With F. E. Fields) xlii 359, 1928.
HARRINGTON, JOHN L.
Experience with a sand blast. iii 166, 1888-89.
Siphon under Broad Canal, Cambridge, Mass. vii 90, 1892-93.
HASKELL, JOHN C.
Cement-lined pipe breaks. vii 171, 1892-93.
Electrolysis, Lynn, Mass. x 278, 1895-96.
Pumping engine foundation, Lynn, Mass. v 163, 1890-91.
Pure water from surface supply. xi 137, 1896-97.
Reducing excessive consumption. ix 231, 1894-95.
Surface water supplies of Massachusetts. xiii. 79, 1898-99.
Water supply at fires. vii 47, 1892-93.
Water supply, Lynn, Mass. x 55, 1895-96.
HASSAM, WALTER E.
Distributing reservoir, Worcester, Mass. xii 153, 1897-98.
HASTINGS, LEWIS M.
Flow of water in a compound pipe. viii 153, 1893-94; ix 58, 1894-95.
Looking backward—a symposium. (With A. W. F. Brown, J. C. Chase, B. I. Cook, J. S. Maxcy, Dwight Porter, and J. C. Whitney.) xlvi 70, 1932.
Loss of water power by diversion. vii 187, 1892-93.
Rainfall and run-off in New England. xviii 32, 1904.
Relining Payson Park Reservoir, Cambridge, Mass. xlii 45, 1928.
Steel for water mains. xiii 314, 1898-99.
Uses of rainfall records. xxxiii 72, 1919.
Vital statistics, Cambridge, Mass. xx 406, 1906.
Water works, Cambridge, Mass. xi 121, 1896-97.
HATCH, HARRY H.
Cobble Mountain diversion tunnel. xlvii 133, 1933.
Cobble Mountain power tunnel. xlviii 123, 1934.
Construction of Cobble Mountain Dam, Springfield water works. xlvi 327, 1932.
Hydraulic fill dams. lii 364, 1938; erratum, liii 238, 1939.
HATHAWAY, ALFRED R.
Municipal water works administration. xxxvii 88, 1923.
HATHAWAY, JAMES M.
Collecting water rates. ii Sept. 68, 1887-88.
HATTON, T. CHALKLEY
Construction and failure of Austin, Pa., dam. xxvi 262, 1912.
HAUSER, E. A.
Rubber in water works practice. lii 254, 1938.
HAVILL, H. T.
Pump slip tests. xxix 511, 1915.
HAWES, LOUIS E.
Spring water supply. xi 156, 1896-97.
Water supply, Provincetown, Mass. xi 285, 1896-97.

HAWES, WILLIAM M.
Placing walking beam in steamer Puritan. iii 163, 1888-89.
HAWLEY, RALPH C.
Forestry operations of the New Haven Water Co. lxi 235, 1947.
HAWLEY, WILLIAM C.
Leadite joints. xxix 563, 1915.
Meterage, Atlantic City, N. J. xii 111, 1897-98.
Waterproofing the concrete lining of reservoirs. xviii 176, 1904.
HAYDEN, JOHN L.
Fall River industrial water supply. lviii 243, 1944.
Hill, N. H., a planned town. lvi 202, 1942.
HAYES, F. H.
Deposit of certified check. xxix 143, 1915.
HAYES, MONTROSE, W.
Flood producing storms, Atlantic seaboard. (With H. R. Byers) li 207, 1937.
HAZEN, ALLEN
Additions to New England water works. xxxvii 233, 1923.
Dams in Japan. lxiv 451, 1930.
European water supplies. ix 109, 1894-95.
Filter sands. vii 165, 1892-93.
Filtration plant, Albany, N. Y. xiv 291, 1899-1900.
Massachusetts water report. xl 44, 1926.
Physical properties of water. xvii 21, 1903.
Sanitary protection of water supplies. xxxv 297, 1921.
Thickness of large pipe lines. xxv 29, 1911.
HAZEN, H. L.
Hydraulic analysis of distribution systems by electric analyzer. (With T. R. Camp) xlviii 383, 1934.
HEDGEPETH, L. L.
Preparing and packing liquid chlorine. lii 1, 1938.
HEENEY, CORDEN T.
River crossings. liv 65, 1940.
HEERMANS, HARRY C.
Bulletin for water users, Hoquiam Water Co. xxii 462, 1908.
HEFFERNAN, DAVID A.
Detecting pipe leakage. xxxii 204, 1918.
Relation of Metropolitan water works to member communities. xlvi 24, 1952.
Reminiscences of a superintendent. xlii 235, 1928.
Service pipe and plumbing appliances. xxxvii 47, 1923.
Suggestions to water works officials. xxxiv 183, 1920.
Thawing frozen services. xxxii 138, 1918.
Water consumption, Milton, Mass. xxviii 290, 1914.
Water distribution in connection with plumbing and corrosion. xxxv 123, 1921.
Water waste prevention. xlv 21, 1931.
HENDERSON, LAWRENCE J.
Water and life. xxviii 1, 1914.
HERING, RUDOLPH
Additional water supply, New York City. xviii 360, 1904.
HERLIHY, ELIZABETH M.
Public works after the war. lviii 14, 1944.
HERLIHY, MICHAEL J.
Water service installation in Newton. xlviii 59, 1934.
HERSCHEL, CLEMENS
Damages by diversion of water power. xxi 241, 1907.
Public works and state boundaries. xli 331, 1927.
Tests of articles of commerce. x 109, 1895-96.
Water works, East Jersey Water Co. viii 18, 1893-94.
HICKS, ARTHUR
Pipe joint for water lines. lxiv 291, 1950.
HIGGINS, DANIEL J.
Calking joints with compressed air. xxviii 296, 1914.
HIGGINS, HERMAN K.
Water supply and filtration, Panama. xxv 454, 1911.
HILL, NICHOLAS S., JR.
Pipe extension charges. xxxv 91, 1921.
Water supply, Tampa, Fla. xl 128, 1926.
HILL, WILLIAM R.
Removing organisms from reservoirs, Syracuse, N. Y. xiv 213, 1899-1900.
Some things that should be done in constructing a system of water works. xiii 36, 1898-99.
Steel submerged pipe, Syracuse, N. Y. viii 40, 1893-94.
HODGMAN, BURT B.
Pipe cleaning. xxxix 171, 1925.
HOLDEN, HORACE G.
Curb box. i Sept. 41, 1886-87.
Inequalities in water rates. iv 213, 1889-90.
Iron service pipe connections. vi 81, 1891-92.
Laying 24 inch main under Nashua River. xii 254, 1897-98.
Water meters. iii 154, 1888-89.
Water supply, Nashua, N. H. xvi 249, 1902.
HOLLIS, FREDERICK S.
Chlamydomonas in Spot Pond. (With H. N. Parker) xiv 26, 1899-1900.
Color and its relation to the character of the water. xiii 94, 1898-99.
Removing organisms from water. xiv 221, 1899-1900.
HOLLIS, IRA N.
Economy in use of coal. xvii, 1903.
Fuel situation in New England. xxxii 217, 1918.
HOLMES, KENNETH H.
Revitalizing old water systems. lxiv 107, 1950.
HOLMGREN, RICHARD S.
Reconstruction of water works, Lebanon, N. H. xlvii 52, 1933.
Water conservation in New Hampshire. lvi 1, 1942.
HOLMQUIST, C. A.
Control of water supplies, New York State. xli 261, 1927.
Water-supply improvement and intestinal diseases. xxxviii 237, 1924.
HOLTON, PHILIP J., JR.
Providence water works. xlix 399, 1935.
HONNESS, GEORGE C.
Sanitary improvements of a large watershed. xxix 502, 1915.
HOOK, G. S.
Electric pumping, Schenectady, N. Y. xx 89, 1906.
HOOPER, ELMER G.
Location of leak in submarine pipe line. xxix 536, 1915.
HORNE, H. W.
Additional water supply, Hartford, Conn. xxxi 588, 1917.
HORNE, RALPH W.
Ground water supply by shallow driven wells. l 207, 1936.

HORTON, ROBERT E.
Adjustment of diversion damages by storage compensation. xxii 334, 1908.
Mean precipitation on drainage basin. xxxviii 1, 1924.
Measurement of precipitation. xxxiii 14, 1919.
New gravity water supply system, Albany, N. Y., with B. L. Smith. xlv 89, 1931.
Watershed leakage in gravity supplies. xxxiii 306, 1919.
HORTON, THEODORE
Supervision of public water supplies by New York State Department of Health. xxxiii 545, 1919.
HOUGH, LAURENCE C.
Distribution systems. xli 14, 1927.
HOUSER, G. C.
Effects of 1929-1930 drought upon water supply, Rockport, Mass. xlv 164, 1931.
Pollution of reservoirs by gulls and other birds. xlv 15, 1931.
Taste and odor control, Rockport, Mass. xlix 156, 1935.
The evolution of a small system, Rockport, Mass. lvi 335, 1942. (With E. Sherman Chase)
HOWARD, ARNOLD E.
Small ground-water supply for state parks. lxii 141, 1948.
HOWARD, CHARLES D.
Function, value and significance of water analyses. liii 362, 1939.
Pollution control, New Hampshire. l 334, 1936.
Water supply sanitation in New Hampshire. xxxi 287, 1917.
HOWARD, JOHN L.
Fells Reservoir, Metropolitan Water Works, Boston, Mass. xv 20, 1900-01.
HOWARD, NORMAN J.
Chlorine studies and taste producing substances. (With R. E. Thompson) xl 276, 1926; xli 59, 1927.
Drifting-sand filtration, Toronto, Ont. xxxiii 504, 1919.
HOWARD, PAUL F.
Financing water systems in Mass. lviii 333, 1944.
Low velocity gravel packed wells. li 424, 1937.
Methods and costs of developing ground water supplies, New England. liii 134, 1939.
Slow sand filtration plant, Newburyport, Mass. xlix 187, 1935.
Water supplies and iron removal plant, Provincetown, Mass. lvii 63, 1943.
Well rater and sampler. l 219, 1936.
HOWE, FREELAND, JR.
Action of water on pipes. xxii 43, 1908.
HOWLAND, J. HASTINGS
Standardization of fire-hose threads. xxxviii 73, 1924.
HOWLAND, W. E.
Expansion of Freeman method for solution of pipe flow problems. xlviii 408, 1934.
Gain in head at take-offs. xlix 14, 1935.
HOWSON, L. R.
Management of Municipal water works. liv 439, 1940.
HOXIE, F. J.
Locating leaks in water mains. xxxvii 307, 1913.
HSIAO, C. Y.
Hydraulic service-characteristics of small metallic pipes. (With G. M. Fair and M. C. Whipple.) xliv 499, 1930.
HULTMAN, EUGENE C.
Distribution system, Metropolitan water district. lii 151, 1938.
HUNTER, EDGAR H.
New Hampshire's approach to post-war problems. lviii 258, 1944.
HUNTER, H. G.
Protection of standpipes exposed to extreme low temperatures. liv 73, 1940.
HUY, H. F.
Woodland Pumping Station, Western New York Water Co., Buffalo, N. Y. xliii 387, 1929.
HYDE, CHARLES GILMAN
Effect of earthquakes on water distribution systems. lvi 14, 1942.
HYNES, VINCENT M.
Salt content of wells in Mass. affected by the tidal wave and hurricane of 1938. lvi 355, 1942.

IANTOSCA, ANGELO
Flood of 1949 in Western Massachusetts. lxiii 287, 1949.

JACKSON, DANIEL D.
Asterionella. (With G. C. Whipple) xiv 1, 1899-1900.
Destruction of typhoid germs and algae by copper sulphate. xix 483, 563, 1905.
JACKSON, JAMES F.
Great ponds as water supplies. iii 203, 1888-89.
JACKSON, J. FREDERICK
Enforcement of sanitary laws. xliii 402, 1929.
Stream pollution in Connecticut. xxxi 627, 1917.
Stream pollution affecting industrial uses. xxxvi 14, 1922.
JACOBS, NATHAN B.
The water system of Philadelphia with augmented facilities. lxi 151, 1947.
JACOBSON, SAMUEL
(With M. S. Wellington)
Free-residual chlorination at the New Haven Water Co. lx 363, 1946.
JACOBSON, SAMUEL
(With Marshall S. Wellington)
Pre-chlorination of slow sand filters. lxiii 128, 1949.
JAHNKE, C. B.
Diesel engine, overall economy. xxxix 105, 1925.
JANIN, GEORGE
Water works, Montreal, Que. xvii 272, 378, 1903.
JEFFORDS, RUSSELL M.
(With William B. Allen)
Ground-water conditions at Mashapaug Pond, Providence, R. I. lxii 38, 1948.
JENNINGS, F. H.
Improvements in filtration, Watertown, N. Y. xxxix 68, 1925.
JOHNSON, GEORGE A.
Copper sulphate treatment of sewage. xix 506, 1905.
Rapid sand filtration, Cambridge, Mass. xxxvii 339, 1923.
Rapid sand filtration. xxxi 390, 1917.
JOHNSON, F. P.
Basin and well covering, Waltham, Mass. viii 120, 1893-94.

JOHNSON, R. F.
Underground records. xxxvi 95, 1922.
JOHNSON, ROBERT P.
Operating experiences, Salem and Beverly filtration plant. li 185, 1937.
JOHNSON, W. E.
Water works, Hartford, Conn. xxxi 575, 1917.
JOHNSON, WILLIAM S.
Effect of meters on water consumption. xxi 109, 1907.
Ground-waters as sources of supply. xxiii 401, 1909.
Municipal water-works financing in Massachusetts. (With C. W. Sherman and H. A. Symonds.) xxx 279, 1916.
Small water works systems. xxviii 144, 1914.
Things domestic meters do not accomplish. xxvi 40, 1912.
JONES, E. A.
Frost protection of pipes. iii 125, 1888-89.
JONES, EVERETT M.
Measurement of sand expansion. (With H. J. Krum) lii 107, 1938.
JONES, H. SEAVER
Reconditioning large water mains. liii 293, 1939.
JORDAN, FRANK C.
Rate of income for domestic service by different classes of residential property. xxiv 592, 1910.
JORDAN, HARRY E.
Water works operations under emergency conditions. lv 516, 1941.

KARALEKAS, PETER C.
Additions to Springfield's transmission mains. lx 332, 1946.
KEITH, SCOTT
Analysis of flow in pipe networks by method of balancing flows. (With Clarence E. Carter) lix 273, 1945.
Hydrant flow and pipe-condition tests. lx 68, 1946.
Seismic reconnaissance for ground water. (With Daniel Linehan) lxii 76, 1949.
KELLOGG, ROYAL S.
Forest conservation. xxii 389, 1908.
KEMBLE, F. T.
Cooperation of water works operators with the public and employees. xxxvi 363, 1922.
KENDALL, RAYMOND E.
Forest fire hazards. lxii 160, 1948.
KENNEDY, ALLEN S.
The algal environment in relation to fish. lxii 196, 1948.
KENNEDY, JOHN B.
Water rates. lxi 202, 1947.
KENNISON, KARL R.
Boston metropolitan water supply extension. xlviii 147, 1934.
Charges to municipalities in the Boston Metropolitan area by M.D.C. lv 522, 1941.
Decolorization by storage. xliii 60, 1929.
Design of pipe lines. xlvii 27, 1933.
Metropolitan Water District financing and costs. lx 162, 1946.
KENNY, W. R.
Chlorine determination by ortho-toldin. (With F. R. McCrumb) xlii 410, 1928.
KIERAN, PATRICK
Water tank, Fall River. ii Sept. 26, 1887-88.
KIERSTED, WYNKOOP
Water supply development for small cities. v 83, 1890-91.

KILLAM, ELSON T.
Pipe linings and friction coefficients. xlvii 283, 1933.
KILLAM, SAMUEL E.
Breaks in water mains. xxxi 268, 1917.
Breaks in water mains, service pipes, and hydrants—a symposium. (With F. A. McInnes, S. H. Taylor, F. A. Marston, C. W. Mowry, and G. H. Finneran.) xlv 28, 1931.
Control of tastes and odors due to microscopic organisms, Spot Pond Reservoir, Boston. xlvi 241, 1932.
Disappearance of cast iron pipe coating during storage. xxxv 867, 1921.
Gate valves specifications. 1916 and 1938. liii 358, 1939.
Meterage results, Metropolitan Water Supply, Boston, Mass. xxxi 495, 1917.
KIMBALL, FRANK C.
Testing 6 inch meters. xvii 305, 1903.
Water emergency and water supply, Worcester, Mass. xxvi 113, 1912.
KIMBALL, GEORGE A.
Recording location of mains and services. viii 157, 1893-94.
Stealing water. iv 187, 1889-90.
KIMBALL, RICHARD
Experiences of a transportation officer in the E.T.O. lx 21, 1946.
KING, ARTHUR C.
Municipal water charges to industrial users. lvi 133, 1942.
Rigid vs. flexible service connections. li 111, 1937.
Water-works practice, Taunton, Mass. xlviii 66, 1934.
KING, GEORGE A.
Direct pumping, Taunton, Mass. xix 21, 1905.
Merging water department with other municipal departments. xxxvi 434, 612, 1922.
Survey of water-works activities in 1910. (Presidential address) xxv 161, 1911.
KINGSBURY, FRANCIS H.
Chlorinating new water mains. (With G. O. Adams) li 60, 1937.
Cold weather troubles—Symposium (With P. R. Sanders, G. H. Finneran, and W. F. Sullivan.) xlviii 330, 1934.
Effect of the 1944 hurricane on Mass. water supplies. lix 13, 1945.
Ground water supplies, Massachusetts. l 149, 1936.
Salt water pollution of the Gloucester, Mass., distribution system. lv 230, 1941.
Surface water supplies, Massachusetts. liii 1, 1939.
Variability in normal chloride content of surface and ground water supplies in Mass. (With Edward W. Smith) lvii 10, 1943.
KINGSLEY, CHESTER W.
Construction and maintenance of water works. iii 127, 1888-89.
KINNICUTT, LEONARD P.
Sewage treatment by bacterial methods. xv 119, 1900-01.
KINNISON, H. B.
Drought in New England, 1929-1930. xlv 145, 1931.
KITSON, S. W.
One hundred years of pumping machinery. liv 103, 1940.
KITTREDGE, ROLAND F.
Rapid sand-filtration plant, Willimantic, Conn. liii 328, 1939.

KITTREDGE, WALTER W.
Purification works, Providence, R. I. xl 522, 1926.
KNAPP, LOUIS H.
Water works, Buffalo, N. Y. xiv 206, 1899-1900.
KNIGHT, CHARLES W.
Flood water channel, Altoona, Pa., reservoirs. xiv 151, 1899-1900.
KNOWLES, MORRIS
Experimental filters, Pittsburgh, Pa. xv 148, 1900-01.
Filter operations, Lawrence, Mass. (With M. F. Collins and A. D. Marble.) xxii 193, 1908.
State regulation of public utilities. xxvi 272, 1912.
Water ejector for sand transportation. (With J. M. Rice) xxv 83, 1911.
Water supply investigations and construction, Lawrence, Mass. (With M. Mansfield and P. Nugent.) xxxix 345, 1925.
KNOX, CHARLES E.
Drought runoff in New England. lxiii 221, 1949.
KNOX, JOSEPH C.
Disaster protection of water supplies, Mass., 1938. liii 216, 1939.
KNUDSON, ADOLPHUS A.
Electrolysis. xv 244, 1900-01.
Lead covered cables, a cause of electrolysis. xxiii 164, 1909.
KOEHLER, OSCAR E.
Thread gage design and threading problems. lii 331, 1938.
KONZ, ALBERT B.
Proceedings of the Air Raid Precaution School, When the bombs fall. lvii 116, 1943.
KRAEMER, HENRY
Metallic copper for the purification of drinking water. xix 487, 1905.
KREBS, ADOLF
Replacing castings and forgings by steel elements cut to shape by automatic machines. xlii 36, 1928.
KRÖHNKE, B.
Sterilization of surface water by chemical methods. xix 551, 1905.
KRUM, H. J.
Measurement of sand expansion. (With E. M. Jones) lii 107, 1938.
KUICHLING, EMIL
Discharge of conduits, Rochester, N. Y. xiii 138, 1898-99.
Steel pipes. xxiv 514, 1910.

LAASE, WILLIAM F.
Water supply, Brooklyn, N. Y. xxix 546, 1915.
LABOON, JOHN F.
Filter plant, Wheeling, W. Va. xxxix 291, 1925.
LALLY, THOMAS E.
Inspection of equipment. xxxvi 450, 613, 1922.
Gates and hydrants. xlix 395, 1935.
Small gate or valve in larger pipe lines. xxxiv 302, 1920.
LAMMERS, FRANKLYN J.
Accelerated clarification. liv 447, 1940.
LANE, M.
(With T. G. Smith)
Clarification problem at Kennebunk, Maine. lxiii 209, 1949.
LANEY, C. C.
Rochester parks. xxiv 485, 1910.
LANHAM, PAUL
Water waste prevention surveys. xxxiii 287, 1919.
LARNED, EDWARD S.
Swamp drainage. xvi 36, 1902.
Testing and use of Portland and natural cements. xxi 1, 1907.
LEARNED, WILBUR F.
Ashland basin No. 4 and the mixing and handling of concrete, Boston, Mass. ii Dec. 3, 1887-88.
LEAVITT, ERASMUS D.
Pumping engines. ix 163, 1894-95.
LeBOSQUET, M., JR.
Cooling water benefits from increased river flows. lx 111, 1946.
LeBOSQUET, MAURICE, JR.
Loss of head in rapid sand filters. (With R. G. Tyler and W. A. Danielson.) xl 322, 1926.
LEDOUX, J. W.
Air in gravity mains. xxxv 31, 1921.
Water supply mains. xxxv 354, 1921.
LeFEVRE, F. J.
(With L. P. Sudrabin)
Effect of cathodic protection on rust-tubercle pH. lxiv 309, 1950.
LEIGHTON, MARSHALL O.
Conservation of water resources. xxii 381, 1908.
Engineering construction by the U. S. Reclamation Service. xx 127, 1906.
Governmental regulation of water powers. xxiv 259, 1910.
LESAGE, THOMAS W.
Service boxes, Montreal, Que. xvii 284, 1903.
LETTON, HARRY P.
Double municipal supplies. (With W. T. Sedgwick) xxv 440, 1911.
Operation of small water purification plants. xxvii 532, 1913.
LEVINE, AARON
(With Lazarus Rubin)
Determination of zinc in water, sewage and industrial wastes with di-beta-naphthylthio carbazone. lxi 267, 1947.
LEVY, ERNEST C.
Kennebec Valley typhoid epidemic 1902-1903. (With G. C. Whipple) xix 163, 1905.
LINBERG, ANDREW C.
Design and construction of preload tanks and domes. lvi 230, 1942.
LINDERMAN, S. E.
Improvement in centrifugal castings process. (With H. W. Stuart) xlviii 423, 1934.
Tuberculation of mains as affected by bacteria. (With H. G. Reddick) xlvi 146, 1932.
LINEHAN, DANIEL AND SCOTT KEITH
Seismic reconnaissance of ground water. lxiii 76, 1949.
LITTLE, BEEKMAN C.
Water works, Rochester, N. Y. xxiv 485, 1910.
LOCHRIDGE, ELBERT E.
Intermittent application of coagulant, Springfield, Mass. xxxi 48, 1917.
Water works, Springfield, Mass. xxi 279, 1907; xlvi 323, 1932.
LOCKE, AUGUSTUS W.
Water in Holland 1887. v 44, 1890-91.
LOCKE, WILLIAM W.
Sanitary inspection, Metropolitan water Works, Boston, Mass. xv 483, 1900-01.

LOCKWOOD, HAROLD J.
Experiences with Public Works Administration—a symposium. (With F. A. Barbour, A. C. Shaw, W. J. Scott, Earl Devendorf, and A. D. Weston.) xlix 23, 1935.

LONGLEY, FRANCIS F.
Coolgardie pipe line, Australia, and correction of its corrosion. xxxix 421, 1925; Lock joint pipe line, New Bedford, Mass. xlix 212, 1935.
Prestressed reinforced concrete pipe. lix 335, 1945.
Reinforced concrete pressure pipe. xxxviii 257, 1924.
Water supplies, American Expeditionary Forces. xxxiii 465, 1919.
Water supply, Salem-Beverly, Mass. xxx 35, 1916.
Water supply in time of war. liv 355, 1940.
Water supply in time of war. (Discussion) lv 115, 1941.

LOONEY, EDWARD J.
Explosion of hot water boiler, Belmont, Mass. xxxiv 200, 1920.

LORETZ, ARTHUR J. L.
Pumping engines. xi 226, 1896-97.

LOUGHLIN, JOSEPH M.
Address by the Regional Director of Civilian Defense. lvii 83, 1943.
Proceedings of the air raid precautions school.

LOVEJOY, CARL H.
Flood-control structures; Part II, Construction. lxii 70, 1948.

LUCEY, P. J.
Rainfall and stream flow, Holyoke, Mass. xxxiv 323, 1920.

LUCKE, CHARLES E.
Diesel oil engine for water works service. xxxvii 145, 1923.

LUMBERT, WILLIAM J.
Butt-welded steel standpipe, Scituate, Mass. liii 144, 1939.
Transite for wells and screens. li 310, 1937.

MacKENZIE, SAMUEL H.
Construction layouts and location of gates. xlvi 143, 1932.
Size of mains and services. li 108, 1937.
Size of meters for services. li 367, 1937.

MacMAHON, J. D.
(With John F. Synan and G. P. Vincent.) Chlorine dioxide—a new development in the treatment of water. lviii 264, 1944.
Chlorination for special and emergency purposes. xlvi 121, 1932.

MADIGAN, JOHN T.
Proceedings of the air raid precaution school. The F.B.I. war investigative jurisdiction. lvii 163, 1943.

MAIN, CHARLES T.
Fuel situation in New England. xxxii 231, 1918.
Pumping engine, Waltham, Mass. (With F. W. Dean) xiv 171, 1899-1900.
Values of water powers and damages by diversion. xxi 214, 1907.

MALLMANN, W. L.
Bacteriological detection of health hazards in water supplies. lv 363, 1941.

MALLORY, F. B.
Poisonous effects of copper. xli 27, 1927.

MANDELL, HOWARD C.
Post-war plans for the water system of New Bedford, Mass. lviii 7, 1944.

MANSFIELD, MYRON G.
Sand embankment dam, Chicopee, Mass. xli 244, 1927.
Water supply investigations and construction, Lawrence, Mass. (With M. Knowles and P. Nugent.) xxxix 345, 1925.

MARBLE, ARTHUR D.
Filter operations, Lawrence, Mass. (With M. Knowles and M. F. Collins.) xxii 193, 1908.

MARSH, CLARENCE W.
Making chlorine at point of consumption. xxxvi 1, 1922.

MARSH, FRANCIS B.
Scituate Dam, Providence, R. I. xl 477, 1926.

MARSTON, FRANK A.
Breaks in water mains, service pipes and hydrants—a symposium. (With F. A. McInnes, S. E. Killam, S. H. Taylor, C. W. Mowry, and G. H. Finneran.) xlv 35, 1931.
High service water supply, Concord, N. H. (With P. R. Sanders) xlvii 1, 1933.
Hydrant connections for fire engines. xxxvii 369, 1923.
Salem and Beverly treatment plant. (With J. W. Raymond, Jr.) l 111, 1936.
Sanitation of construction areas on the Delaware aqueduct. lv 166, 1941.
Standpipe, Gloversville, N. Y. xxxvi 288, 1922.
Transite pipe river crossing, Scituate, Mass. li 299, 1937.
Water works operating expenses under post-war conditions. lxiv 119, 1950.

MASON, WILLIAM P.
Copper sulphate as a disinfectant. xix 481, 1905.
Drinking water and disease. vi 139, 1891-92.
Explosion of septic tank, Saratoga, N. Y. xxi 28, 181, 1907.
Intensity of typhoid and character of water carriage. xix 412, 1905.
Swimming pools. xxxiii 458, 1919.
Typhoid epidemic, Maidstone, England. xxiv 299, 1910.

MATERA, JAMES J.
One hundred years of public water supply for Boston. lxiii 150, 1949.

MATTHEWS, NATHAN
Why municipal water works are not self supporting. ix 1, 1894-95.

MAXCY, JOSIAH S.
Looking backward—a symposium. (With A. W. F. Brown, J. C. Chase, B. I. Cook, L. M. Hastings, Dwight Porter, and J. C. Whitney.) xliv 72, 1932.

MAZZUR, FRANK A.
Pumping equipment for economy. xxxvii 242, 1923.

McCARTHY, JOSEPH A.
Bromine and chlorine dioxide as water disinfectants. lviii 55, 1944.
Chlorine dioxide for the treatment of water supplies. lix 252, 1945.
Instruction in water bacteriology at the Mass. Decontamination School. lvi 288, 1942.
Viability of bacteria in presence of phosphates. (With W. E. Cassidy) lvii 287, 1943.

McCLINTOCK, W. E.
Water pipe trenches vs. good roads. viii 71, 1893-94.

McCOY, BYRON O.
Power in New England. lxiii 250, 1949.
McCRUMB, F. R.
Chlorine determination by ortho-tolidin. xli 386, 1927; (With W. R. Kenney) xlii 410, 1928.
McCUNE, C. A.
Metallurgy of welding wire. xlii 33, 1928.
McCURDY, H. S. R.
Anthracite filters. li 37, 1937.
Hydraulic fill dams, Miami Conservancy District, O. xxxiii 389, 1919.
McDOWELL, EDWIN T.
Corrosion control at Biddeford, Maine. liv 288, 1940.
Operation of new filter plant, Biddeford, Me. liii 158, 1939.
Operating expenses under post-war conditions. lxiv 131, 1950.
McINNES, FRANK A.
Boston water supply. xlvi 8, 1932.
Breaks of water mains, service pipes and hydrants—a symposium. (With S. E. Killam, S. H. Taylor, F. A. Marston, C. W Mowry, and G. H. Finneran.) xlv 23, 1931.
High pressure fire system, Boston, Mass xxxvi 483, 1922.
Salem fire. (With Clarence Goldsmith) xxix 94, 1915.
Salt water fire system, Boston, Mass. xiii 304, 1898-99.
Thawing frozen service pipes by electricity. xviii 214, 1904.
Waste restriction, Boston, Mass. xxxv 34, 1921.
McKENNA, JAMES A.
Pumping stations, Providence, R. I. xl 466, 1926.
McKENZIE, THOMAS
Standpipe, Westerly, R. I. xxix 169, 1915.
McKIBBEN, FRANK P.
State supervision of dams and reservoirs. xxvi 242, 1912.
McMURRAY, JAMES A.
Metering, Boston, Mass. xxix 73, 1915.
Meter setting and maintenance. xxxvii 44, 1923.
McWANE, J. R.
Cast iron service pipe. xxxviii 79, 1924.
Manufacture and use of small cast iron pipe. xliv 495, 1930.
MELLEY, WILLIAM P.
Financing water mains. lvi 136, 1942.
MENDELL, JAMES H.
Pumping equipment, Manchester, N. H. xxxii 169, 1918.
MERIAM, R. S.
Public works and business stabilization. xlviii 441, 1934.
MERRILL, FRANK E.
Grounding electric light wires on water pipes. xxiii 180, 1909.
Public watering stations. xxviii 357, 1914.
MERRILL, GEORGE F.
Booster pump for gravity supply. xxxvii 190, 1923.
Floods and hurricane at Ware, Mass. liv 186, 1940.
Water works, Greenfield, Mass. xxix 149, 1915.
MERRIAM, THADDEUS
Law of interstate waters and its application to the Delaware River. xlv 199, 1931.
MERRITHEW, EARNEST A.
Payment for relocation of water mains. lii 80, 1938.
MESERVE, D. R.
Organic coatings in water works maintenance. lx 227, 1946.
METCALF, LEONARD
Control of public utility companies by public service commissions. (Presidential address.) xxx 160, 1916.
Depreciation. xxiv 442, 1910.
Distributing reservoir, Dayton, O. (With W. T. Barnes) xxxiii 219, 1919.
Echo Lake Dam, Milford, Mass. xvii 146, 1903.
Groined arch roofs. xvii 398, 1903.
Sebago Lake intake and conduit, Portland, Me. (With H. U. Fuller and C. B. Mitchell.) xxxix 394, 1925.
Wrought iron cement lined pipe. xxiii 1, 1909.
MEYER, ALVIN F.
Sanitary engineering in the occupied zone of Germany. lxiii 277, 1949.
MEYERHERM, C. F.
Electrolysis investigations. xliii 143, 1929.
MIDDLETON, R. E.
Making watershed areas and sanitary districts coterminous. xiii 119, 1898-99.
MILLER, EDWARD F.
Waste heat engines. xvii 44, 1903.
MILLER, HIRAM A.
Additional water supply, Pittsfield, Mass. xxvii 337, 1913.
MILLER, JOHN P.
Reforestation of North Adams watersheds. xlviii 272, 1934.
MILLIGAN, ROBERT E.
Mechanical filtration plant, Newport, R. I. xxv 60, 1911.
MILLS, HIRAM F.
Control of inland waters by Mass. State Board of Health. i Mar. 6, 1886-87.
Filter, Lawrence, Mass. ix 44, 1894-95.
Typhoid fever and water supplies. v 149, 1890-91.
MINKUS, ALEXANDER J.
Operation of the slow sand filter, Hartford, Conn. lxii 242, 1948.
MINOR, EDWARD E.
Distribution system problems, New Haven, Conn. l 274, 1936.
MITCHELL, CHARLES B.
Sebago Lake intake and conduit, Portland, Me. (With H. U. Fuller and Leonard Metcalf.) xxxix 394, 1925.
MITCHELL, J.
Spun bituminous pipe coating in Great Britain. li 390, 1937.
MITCHELL, R. W.
Concrete pipe. xliii 18, 1929.
MITCHELL, ROBERT D.
Experimental treatment of Rancocas Creek water for Fort Dix, N. Y. lvi 76, 1942.
MOAT, CHARLES P.
Quality of public water supplies of Vermont. xv 514, 1900-01; xxxvii 291, 1923.
MOLDENKE, RICHARD
Engineering aspects of cast iron. xxxvii 1, 1923.
MOODY, HERBERT A.
Hydro-electric power development at Cobble Mountain, Springfield water supply. xlvi 356, 1932.
MOODY, WILLIAM H.
Results of universal metering, Naugatuck Water Co. lxii 202, 1948.
MOORE, EDWARD W.
Chemical dosages for corrosion prevention. lii 311, 1938; erratum, lii 466, 1938.

Corrosion of brass in water. xlviii 47, 1934.
Corrosion control. lv 265, 1941.
Studies in the removal of iron and manganese. (With E. A. Snow, Jr.) lvi 320, 1942.
MOORE, GEORGE T.
Copper sulphate as an algicide. xix 474, 1905.
MOORE, JOHN J.
Raising water rates to offset increased costs. xxxii 248, 1918.
MOORE, LEWIS E.
Guarding public water supplies. lvi 265, 1942.
MORAN, JOHN W.
Water works, Gloucester, Mass. xxv 381, 1911.
MOREHOUSE, W. W.
Ground water supply, Dayton, O. li 219, 1937.
MORRILL, LABAN
Development of Stoughton's water collecting system. lv 206, 1941.
MORRIS, J. CARREL
Contamination of water supplies by radioactive substances. (With Jeanne B. Carritt) lxii 1, 1948.
The dynamics of water chlorination. (With Gordon M. Fair and Shih Lu Chang.) lxi 285, 1947.
Water disinfecting tablets. (With G. M. Fair, G. H. Conant and R. P. Burden.) lviii 270, 1944.
MORSE, C. H.
Electrolysis. vii 139, 1892-93.
MORSE, ROBERT B.
Water disinfection in Maryland. (With H. R. Hall) xxx 301, 1916.
MOSTELLER, W. P.
Selling from the manufacturer's and purchaser's viewpoints. xxxviii 287, 1924.
MOULTON, DAVID E.
Laws governing water utilities. lviii 203, 1944.
Organization of Portland Water District, Portland, Me. xliii 359, 1929.
Recreation facilities near water supplies. li 370, 1937.
Water supply, Portland, Me. xxxi 199, 1917.
MOWRY, CHARLES W.
Breaks in water mains, service pipes, and hydrants—a symposium. (With F. A. McInnes, S. E. Killam, S. H. Taylor, F. A. Marston, and G. H. Finneran.) xlv 39, 1931.
Cross-connection regulations. xlix 66, 1935.
Fighting fires beforehand. xli 413, 1927.
Inspection and maintenance of gate valves. xlvii 111, 1933.
Water consumption during fires. xlvi 93, 1932.
MULHALL, JOHN F. J.
Water works accounting. xix 395, 1905.
MUNROE, JAMES E.
The construction of water works structures. lxi 160, 1947.
MURDOCK, JOHN H., JR.
Recent labor legislation and public utility operations. lxiii 14, 1949.
MURDOCH, WILLIAM
Cleaning water mains, St. John, N. B. xiii 147, 333, 1898-99.
Wooden joints in cast iron mains. xv 34, 1900-01.
MURRAY, ALBEUS P.
Reading meters, billing, and collecting revenue, Providence, R. I. xl 457, 1926.
MYERS, C. J.
Wood stave conduit, Atlantic City. xviii 387, 1904.
MYOTT, E. B.
Construction of Granville Dam, Westfield, Mass. xliii 175, 1929.

NEBOLSINE, ROSS
New trends in ground water development. lvii 186, 1943.
NELSON, FRED B.
Distribution problems. xliii 133, 1929.
Testing meters. xxix 539, 1915.
NEVONS, HIRAM S.
Experience with a 30 inch gate. iv 212, 1889-90.
NEWCOMB, CHARLES L.
Hydrant experiments. xxi 378, 1907.
NEWELL, I. LAIRD
Red water—causes and elimination lvi 166, 1942.
NEWLANDS, JAMES A.
New filtration plant, Bristol, Conn. lii 324, 1938.
NEWSOM, REEVES J.
Economy of service pipe installation. xxxvi 79, 1922.
Group management of water companies. xlvii 337, 1933.
Length of service of water works facilities. lv 463, 1941.
Modernizing an established water works system, Lynn, Mass. xxxiv 139, 1920.
Office methods and regulations. xxxiv 264, 1920.
Pumping station design and operation. xxxv 46, 1921.
NICHOLS, PHILIPS
Law governing the taking of private property. xxxviii 327, 1924.
NIELSON, D. M.
Development in electronic instrumentation. lix 265, 1945.
NILES, WILLIAM H.
Secular and local variations of weather and climate affecting water supply. v 74, 1890-91.
NOLAN, S. FRANK
Distribution and maintenance, Providence, R. I. xl 460, 1926.
NOLTE, AUGUST G.
Covering service-reservoirs for filtered or ground water. (With G. C. Bunker) xxxvii 261, 1923.
NORTHROP, FRANK L.
Water filter, Milford, Mass. x 262, 1895-96.
NOYES, ALBERT F.
Driven wells. 1 June 19, 1886-87.
Excavating in quicksand. iv 218, 1889-90.
Metropolitan water supply of Massachusetts. x 117, 1895-96.
Water hammer in house plumbing. 62, Trans. 1885.
Weight of cast iron pipe. 28, 154, Trans. 1885.
NUGENT, PATRICK
Water supply investigations and construction, Lawrence, Mass. (With M. Knowles and M. G. Mansfield.) xxxix 345, 1925.
NYE, JOSEPH K.
Water works, Fairhaven, Mass. viii 175, 1893-94.

OAKMAN, ROGER G.
Diesel engine operation, Needham, Mass. liii 152, 1939.

Laying lined and wrapped steel pipe, Needham, Mass. liii 271, 1939.
Studies of the Needham, Mass., distribution system. lix 1, 1945.

OLMSTED, FREDERICK L.
Landscape problems of Spot Pond Reservoir, Boston, Mass. xv 272, 1900-01.

ORCHARD, WILLIAM J.
Chlorination of New England water supplies. xxxvi 99, 1922.

OTIS, JOHN C.
Water works, Poughkeepsie, N. Y. xxiii 283, 1909.

PALMER, MARSHALL B.
Water supply, Syracuse, N. Y. xxxviii 226, 1924.

PARKER, F. H.
High service motor, Burlington, Vt. ii Sept. 63, 1887-88.

PARKER, HORATIO N.
Chlamydomonas in Spot Pond, Boston, Mass. (With F. S. Hollis) xiv 26, 1899-1900.

PARKER, WALTER
New developments in fluid meters. lii 248, 1938.

PARKER, WILLIAM S.
Public works programming and the post-emergency problem. lvi 192, 1942.

PARKINSON, ROYAL
Policy choices in employer-employee relations. lxi 88, 1947.

PARRISH, EDWARD
Atlantic intra-coastal waterways. xxv 285, 1911.

PEASE, HERBERT D.
Flies and disease. xxv 17, 1911.
Water supplies and Health Department of New York State. xxiii 90, 1909.

PECK, ERMON M.
Meters and water consumption, Hartford, Conn. xxii 282, 1908.

PELLETIER, JOSEPH C.
Civil service and the water department. xxiii 209-355, 1909.

PERRY, FRED G.
Recording pressure-gages. x 255, 1895-96.

PHILLIPS, VICTOR B.
Electrolysis on steel force-main, Akron, O. xxxvi 170, 1922.

PIERCE, JOHN F.
Water works in Cuba. xlvi 184, 1932.

PIRNIE, MALCOLM
Aeration in water purification. xliii 395, 1929.
Iron and iron coagulants. li 437, 1937.
Supplying less corrosive soft water. xlix 419, 1935.

PITCHER, FRANK H.
Pumping by electricity, Montreal, Que. xvii 349, 1903.

POLLITT, WILLIAM C.
Watershed and forestation work, Bridgeport Water Company. xlvii 223, 1933.

POOL, CHARLES L.
Ammonia-chlorine treatment, East Providence, R. I. (With J. V. Turner) xlvii 13, 1933.
Improvements in Rhode Island water supplies. (With J. J. Dillon) l 143, 1936.
Sanitation in New Hampshire. xxxviii 122, 1924.

POPE, SAMUEL J.
Cooperation of fire and water departments in emergencies. lv 458, 1941.

PORTER, DWIGHT
Hydraulic laboratory, Massachusetts Institute of Technology. viii 81, 1893-94.
Looking backward—a symposium. (With A. W. F. Brown, J. C. Chase, B. I. Cook, L. M. Hastings, J. S. Maxcy, and J. C. Whitney) lxvi 75, 1932.

PORTER, HOLBROOK, F. J.
Steel forgings for pumping engines. xii 120, 1897-98.

POTTER, ALEXANDER
Economy of circular reinforced concrete reservoir construction. xxvi 138, 1912.

POTTER, HOWARD H.
Proceedings of the Air Raid Precaution School, Effects of war gases on water supplies. lvii 136, 1943.
Proceedings of the Air Raid Precautions School, Objectives of the school. lvii 81, 1943.

POWELL, S. T.
Ozone as a sterilizing agent. xxix 87, 1915.
Water treatment for industries and boilers. lii 418, 1938.

PRATT, ARTHUR H.
Core wall, Wanaque Dam, N. J. xxxvi 457, 1922.
Wanaque water works project. xliv 386, 1930.

PRATT, GILBERT H.
Chlorine control apparatus for sterilization of water supplies. xxxviii 63, 1924.
Uses and abuses of water filtration. xxvi 341, 1912.

PRIDE, EDWIN L.
Water works accounting. xxxi 63, 1917.

PROVOST, ANDREW J., JR.
Protection of New York's water supply from pollution during construction work. xxv 301, 1911.

PURDY, J. H.
Fire prootection for factories. xviii 193, 1904.

RANDLETTE, J. W.
Painting fire hydrants to indicate capacity. lii 85, 1938.

RANE, FRANK W.
Reforestation of watersheds. xxv 234, 1911.

RANKIN, R. S.
Mechanical conditioning of treated waters. xlvi 380, 1932.

RAY, T. B.
Mystic Valley Conn. filtration plant. (With W. H. Chase) l 325, 1936.

RAYMOND, JOHN W., JR.
Salem and Beverly treatment plant. (With F. A. Marston) l 111, 1936.

RAYMOND, WILLIAM G.
Damages to mill powers, Troy, N. Y. xiii 152, 1898-99.
Power capacity of a stream without storage. xxii 184, 1908.

READ, J. H.
Electrical equipment. xlvii 131, 1933.
Manchester, N. H., water works. xlviii 275, 1934.

RECKLINGHAUSEN, MAX VON
Ultra-violet rays for water purification. xxix 202, 1915.

REDDICK, H. G.
Tuberculation of mains as affected by bacteria. (With S. E. Linderman) xlvi 146, 1932.

REED, CLARENCE H.
The character of Quabbin Reservoir water during reservoir filling. lxi 181, 1947.

REEKIE, DUDLEY A.
Proceedings of the Air Raid Precaution School, Organisation of civilian defense. lvii 91, 1943.
REID, WILLIAM A.
Clearing and grubbing Scituate Reservoir, Providence, R. I. xl 499, 1926.
RENY, J. F.
Annuities for public service employees. lviii 236, 1944.
The story of P.W.A. in Maine water works. liv 282, 1940.
War time problems in the Portland water district. lvi 309, 1942.
REYNOLDS, HARRIS A.
Work of the N. E. Forestry Foundation on watersheds. lxii 133, 1948.
REYNOLDS, IRVING H.
Pumping engine practice of the Edward P. Allis Co. xiii 172, 1898-99.
REYNOLDS, JOEL W.
Diesel drive for water works pumping stations. lv 195, 1941.
RICE, JOHN M.
Water ejector for transporting sand. (With M. Knowles) xxv 83, 1911.
RICE, L. FREDERICK
Test of water meters, Boston, Mass. iii 67, 120, 1888-89.
RICE, OWEN
The use of hexametaphosphate in water treatment. lvi 84, 1942.
Sodium hexametaphosphate as an aid in control of corrosion. liv 25, 1940.
RICH, A. B.
Experience with transite pipe. li 289, 1937.
RICH, GEORGE R.
Power generation from the Delaware project. lxiv 323, 1950.
RICHARDS, GRAGG
Rainfall of Northern New England. xlii 431, 1928; xliii 50, 1929; xliv 74, 100, 1930.
RICHARDS, HENRY
Slow sand filter, Gardiner, Me. xxxi 216, 1917.
RICHARDS, WALTER H.
Accident on tile conduit. iii 164, 1888-89.
Efficiency in water works management. xxv 407, 1911.
High service system, New London, Conn. vii 148, 1892-93.
Laying 20 inch main, New London, Conn. iv 178, 1889-90.
Meter rates. xxii 289, 1908.
Storage reservoir construction, New London, Conn. xviii 67, 1904.
Service pipe. 40, Trans. 1884.
RICHARDSON, CHARLES G.
Parshall measuring flume at Providence, R. I. xlviii 1, 1934.
RIDGWAY, ROBERT
Hudson River crossing, Catskill Aqueduct, N. Y. xxv 317, 1911.
RIORDAN, JOHN E.
Construction of Norwalk Lake dam. lx 255, 1946.
RISBRIDGER, C. A.
The design and construction of Perry Bar service reservoir, Birmingham, England. lxiii 325, 1949.
ROADS, GEORGE M., JR.
(With J. D. Carpenter)
Flow tests on 30 inch steel pipe lined with bituminastic enamel in 1932. lvi 8, 1942.
ROBERTSON, R. A.
Venturi meter. vii 32, 1892-93.
ROBIE, KENNETH W.
Distribution-pipe problems. lxii 122, 1948.
ROCKWELL, WILLARD F.
The place of public works construction in post-war planning. lix 22, 1945.
RODGERS, LYNDON T.
Hurricanes, with special emphasis on the New England hurricanes of 1938 and 1944. lix 9, 1945.
ROGERS, EDWIN H.
Sub-surface collecting system and water quality, Newton, Mass. xxxvii 312, 1923.
ROGERS, HENRY W.
Filtration of water. 54, Trans. 1884.
Water works, Lawrence, Mass. i Dec. 6, 1886-87.
ROGERS, SHERMAN L.
Methods of cutting cast iron pipe. lxii 238, 1948.
Maintenance of water works equipment. liii 345, 1939.
ROSA, EDWARD B.
Electrolysis and its mitigation. xxix 49, 1915.
ROSS, ALBERT A.
Freezing and thawing of water mains and services. xlix 176, 1935.
Water waste surveys, Lexington, Mass. xlviii 72, 1934.
ROULLIER, G. A.
Water meters. v 56, 1890-91.
RUBIN, LAZARUS
Chemical contamination of water supplies. lvi 276, 1942.
Determination of zinc in water, sewage and industrial wastes by di-seta-naphthylthio carbazone. (With Aaron Levine) lxi 267, 1947.
Recent developments in the chemical treatment of water supplies. lxii 126, 1948.
RUFFING, F. M.
Application of magnesium for cathodic protection. lix 325, 1945.
RUGE, A. C.
Earthquakes and elevated tanks. xlix 226, 1935.
RUGGLES, A. V.
Average service life of 6 inch. C.I. water mains in Brooklyn, N. Y. lvi 361, 1942.
The useful life of iron and steel standpipes. (Discussion) liv 456, 1940.
RUGGLES, SYDNEY L.
Eliminating water hammer from a high pressure regulating-valve. xxxvii 402, 1923.
RYDER, LINCOLN W.
The case for water witching. lxiii 232, 1949.
SALMOND, HERBERT F.
West Parish filtration plant, Springfield water works. xlvi 345, 1932.
SAMPSON, GEORGE A.
Cost of small surface water supplies, New England. liii 121, 1939.
Engineering problems in recent improvements, Newton, Mass. xlviii 88, 1934.
Improvement of water supply, Keene, N. H. (With R. S. Weston) xl 1, 1926.
Iron removal plant, Amesbury, Mass. xlii 53, 1928.
Stand-pipe, Middleboro, Mass. xxx 251, 1916.
SANDERS, PERCY R.
Automatic chlorination, Concord, N. H. xliii 399, 1929.

Cold weather troubles—a symposium. (With G. H. Finneran, W. F. Sullivan, and F. H. Kingsbury.) xlviii 320, 1934.
Electric pumping, Concord, N. H. xxxvi 517, 1922.
High service water supply, Concord, N. H. (With F. A. Marston) xlvii 1, 1933.
Water supply, Concord, N. H. l 331, 1936.

SANDERSON, E. C.
Winchester, Mass., water works. xlviii 286, 1934.

SANDO, WILL J.
Pumping machinery, Metropolitan Water Works, Boston, Mass. xv 299, 1900-01.
Trial of 30-m.g.d. pump, Metropolitan Water Works, Boston, Mass. xv 232, 1900-01.

SAUNDERS, DANIEL J.
Iron and hardness removal. lii 443, 1938.

SAVILLE, CALEB M.
Color and other phenomena of water from an unstripped reservoir, Hartford, Conn. xxxix 145, 1925.
Color reduction in storage reservoirs. xlii 416, 1929.
Compensating reservoirs and water diversion. xl 852, 1926.
Cleaning mains, Hartford, Conn. xxvii 489, 1913.
Fifty years in water works practice. xlvi 33, 1932.
Financing main pipe extensions by assessment. xxxix 185, 1925; xl 22, 1926.
Floods and droughts in New England. xxxix 1, 1925.
Interstate water rights. xli 340, 1927.
New England droughts and floods. li 326, 1937.
Pipes and pipe laying, Metropolitan Water Works, Boston, Mass. xvii 203, 1903.
Repairs to lining of small reservoir, Chelsea, Mass. xix 66, 1905.
Reservoir and stand-pipe, Quincy, Mass. xvi 177, 1902.
Selection of meters. xxxii 329, 1918.
Southern New England hydrology. xlvii 363, 1933; xlviii 255, 1934.
Use and discard of auxiliary fire protection from a polluted source. xxxvi 392, 1922.
Water ram in distribution system, Hartford, Conn. xxvii 183, 1919.
Water works experiences, Hartford, Conn. xxx 195, 1916.

SAVILLE, THORNDIKE
Nature of color in water. xxxi 78, 1917.
Water supply, Caracas, Venezuela. xlii 303, 1928.

SAWYER, ALBERT L.
Classified cash book. xxxi 54, 1917.
Legislation and court decisions for sanitary protection of water supplies. xxxii 154, 1918.
Old aqueduct, Haverhill, Mass. xxii 442, 1908.

SAWYER, CLAIR N.
Fertilization of lakes by agricultural and urban drainage. lxi 109, 1947.

SCHNEIDER, WILLIAM J.
Copper and brass water services. xliii 148, 1929.
Copper and health. xliv 485, 1930.

SCHWARZLER, C.
Promoting the interest of the taxpayer in water supply. liv 428, 1940.

SCOTT, ROSSITER S.
Use of couplings. l 399, 1936.

SCOTT, WARREN J.
Bacteriological field studies of water distribution systems. lv 83, 1941.
Cross-connections in Connecticut. xli 365, 1927.
Cross-connection surveys. xlix 354, 1935.
Experiences with the Public Works Administration—a symposium. (With F. A. Barbour, H. J. Lockwood, A. L. Shaw, Earl Devendorf, and A. D. Weston.) xlix 31, 1935.
Laws and regulations for the protection of public water supplies. xl 425, 1926.
Stream pollution abatement in Conn. lxi 59, 1947.
Public water supplies of Connecticut. (With F. O. A. Almquist) xliii 298, 1929.
Qualifications of operators. li 402, 1937.
Responsibility for water piping on consumer premises. lix 60, 1945.
Water works emergencies from health standpoint. xliv 133, 1932.
1941 drought in New England (Symposium). lvi 237, 1942.

SEARS, WALTON H.
Damages paid for diversions from the Swift and Ware Rivers for the water supply of the Boston Metropolitan District. lxiv 195, 1950.
Pumping water—historical review. xlix 119, 1935.
Water for air conditioning. lii 452, 1938.

SEDGWICK, WILLIAM T.
Biological water analysis. ii June 7, 1887-88; lv 50, 1889-90.
Double municipal supplies. (With H. P. Letton) xxv 440, 1911.
From peace to war, victory and just judgment. xxxii 189, 1918.
Organisms causing odors and tastes. xiv 54, 1899-1900.
Protection of surface waters from pollution. xi 245, 1896-97.
Protection of water supplies from pollution by railroads. xx 427, 1906.
Responsibility for causation of typhoid. (With C. E. A. Winslow) xx 51, 1906.
Sand filtration. vii 103, 1892-93.
Sanitary condition of water supply, Burlington, Vt. x 167, 1895-96.
Surface water for drinking purposes. v 33, 1890-91.
Typhoid, Washington, D. C. xxv 470, 1911.
Water supply sanitation 19th century. xv 315, 1900-01.
Water supply sanitation 19th and 20th century. xxx 183, 1916.

SENIOR, SAMUEL P.
Comments on the construction of the Saugatuck Dam. lx 266, 1946.
Saugatuck development of the Bridgeport Hydraulic Co. lv 473, 1941.
Water works, Bridgeport Hydraulic Co., Bridgeport, Conn. xxxv 309, 1921; xlvii 213, 1933.

SEYMOUR, CHARLES W. S.
Anchor ice in a recording pressure-gage. ix 223, 1894-95.

SHANNON, WILLIAM L.
Prediction of frost penetration. lix 356, 1945.

SHAPIRO, ROBERT
Katadyn treatment of water and swimming pools. (With F. E. Hale) li 113, 1937.

SHAUGHNESSY, J. F.
Phelps Brook Dam, Hartford, Conn. xxxii 39, 1918.

SHAW, ARTHUR L.
Economics of water purification. (With E. S. Chase) lii 131, 1938.
Electric pumping station, Kennebec Water District, Waterville, Me. xxxix 32, 1925.
Experiences with the Public Works Administration—a symposium. (With F. A. Barbour, H. J. Lockwood, W. J. Scott, Earl Devendorf, and A. D. Weston.) xlix 28, 1935.
Rapid sand filters, Lawrence, Mass. (With E. S. Chase) liii 412, 1939.
Suit your building to its neighborhood. lvii 3, 1943.
Water supply system, Hinsdale, N. H. l 315, 1936.
Water treatment at Groton, Conn. lv 233, 1941.
SHAW, PERCY A.
Brook diversion to improve water supply, Manchester, N. H. l 291, 1936.
Incorporating the Amoskeag Mills water system into the Manchester, N. H., city system. lvi 212, 1942.
Manchester distribution reservoir. xlviii 281, 1934.
Power and pumping facilities, Manchester, N. H. liii 352, 1939.
Water works operating expenses under post-war conditions. lxiv 125, 1950.
SHEA, WALTER J.
Stream pollution abatement in Rhode Island. lxi 77, 1947.
The hurricane of 1944 and Rhode Island water supplies. lix 19, 1945.
1941 drought in New England. (Symposium) lvi 237, 1942.
SHEDD, J. HERBERT
Compressed air. xix 1, 1905.
Requisite amount of water for a public supply. xviii 1, 19, 1904.
SHERMAN, CHARLES W.
Bending 10 inch cast iron pipe. xxvii 27, 1913.
Cement lined cast iron pipe. xl 98, 1926.
Cleaning and painting standpipes. xxxv 61, 1921.
Days of small things. xlviii 26, 1934.
Early log pipe, Boston, Mass. xli 216, 1927.
Economy of municipal bonds for water works construction. xl 15, 1926.
Emergency water supply, Leominster, Mass. (With W. G. Classon) xxxix 450, 1925.
Grouting or cushioning standpipe bases. xxx 131, 1916.
History of N. E. Water Works Association. xlvi 1, 1932.
Municipal water works financing in Massachusetts. (With W. S. Johnson and H. A. Symonds.) xxx 279, 1916.
New England hydraulic science. xlvii 153, 1933.
Protecting iron and steel standpipes from corrosion. xxxiii 272, 1919.
Reinforced concrete standpipes. liii 201, 1938.
Revenue and operating expenses of municipally-owned water works, Massachusetts, 1913. xxx 260, 1916.
Siphon operation on main supply pipe. (With W. R. Brann) xxxv 36, 1921.
The useful life of iron and steel standpipes. liv 149, 1940.
Term of water works bonds. xxxvi 589, 1922.
Tuberculation and deterioration of water pipes, Belmont, Mass. xlviii 300, 1934.
Tuberculation of cast iron pipe. xlii 259, 1928.
Typhoid epidemic, Plymouth, Pa., 1885. xli 23, 1927.
Underwriters test of transite pipe. li 282, 1937.
Water consumption. xxxvi 273, 1922.
Water ram. xxvii 169, 1913.
Water works practice abroad. xl 207, 1926.
SHERMAN, EDWARD C.
Water sterilization plant, Wakefield, Mass. xxx 135, 1916.
SHERMAN, LESLIE K.
New plumbing regulations, Connecticut. liii 351, 1938.
Plumbing fixtures and back siphonage. li 266, 1937.
Safeguards for ground water supplies. liii 299, 1939.
SHERMAN, WILLIAM B.
Precision. xvii 52, 1903.
Pumping capacity and maximum consumption. iii 90, 1888-89.
Water consumption, 1886. ii March 35, 1887-88.
SHURTLEFF, FLAVEL
Community planning. lxi 231, 1947.
SICKMAN, ALBERT F.
Water power, Holyoke, Mass. xviii 337, 1904.
SIDDONS, JOSEPH S. V.
Torresdale filter plant, Philadelphia, Pa. (With F. D. West) xxvii 337, 1913.
SIEMS, V. BERNARD
Design of distribution systems. (With D. B. Biser) xliii 284, 1929.
Metropolitan district for Baltimore County, Md. xxxviii 250, 1924.
SIGWORTH, E. A.
Activated carbon. li 200, 1937.
Activated carbon manufacture and specifications. liii 265, 1939.
Taste and odor control. lxiii 238, 1949.
SKINNER, HERVEY J.
Industrial water requirements. lii 403, 1938.
SKINNER, JOHN F.
Cobbs Hill Reservoir, Rochester, N. Y. xxiv 498, 1910.
Protection of catchment areas. xliii 1, 1929.
Sources of supply, conduits and reservoirs, Rochester, N. Y. xxxviii 219, 1924.
SMITH, ARTHUR D.
The development of plastic coatings for corrosion protection in the water works industry. lx 117, 1946.
SMITH, ARTHUR H.
Leakage from lead joints in cast iron pipe. xxx 1, 1916.
SMITH, A. V.
Cathodic protection. lii 233, 1938.
SMITH, BENJAMIN L.
New gravity water supply system, Albany, N. Y. (With R. E. Horton) xlv 89, 1931.
SMITH, EDWARD W.
Variability in normal chloride content of surface ground water supplies in Mass. lvii 10, 1943. (With Francis H. Kingsbury)
SMITH, ERASTUS G.
Mississippi River as a source of water supply. xix 215, 1905.
SMITH, FRED E.
Chlorination of a Cambridge main. li 57, 1937.
Comparison of lactose broth and brilliant green-bile at Cambridge. liv 16, 1940.

Filter plant operation at Cambridge, Mass. lxii 220, 1948.
Operating experiences, Cambridge, Mass., filtration plant. (With M. C. Whipple) xlv 321, 1931.
Sludge disposal at water purification plants in New England. lxii 265, 1948.
Water supply for the air transport command. lxi 238, 1947.

SMITH, GORDON Z.
Control of water waste by house-to-house inspection. xxxv 322, 1921.

SMITH, HERBERT E.
Toxicology of copper for water treatment. xix 421, 1905.

SMITH, HUBERT B.
Pitot tube for water flow and pressure studies. xliv 471, 1930.

SMITH, JOHN E.
High and low duty pumping engines. xiv 163, 1899-1900.

SMITH, J. WALDO
Catskill water supply, New York, N. Y. xxix 481, 1915.
Schoharie development, New York, N. Y. xxxiii 257, 1919.

SMITH, LEANDER G.
Experiences during the recent fires in York County, Me. lxii 164, 1948.
Solving a difficult clarification problem at Kennebunk, Me. (With M. Lane) lxiii 209, 1949.

SMITH, LEONARD C. S.
Diesel engine in a pumping plant. xxxix 135, 1925.

SMITH, LEAVITT R.
Hydrant pressure and flowage test, Portland, Me. xlvii 107, 1933.

SMITH, THEOBALD
Water borne diseases. x 203, 1895-96.

SMITH, WILSON F.
Kensico Reservoir, New York, N. Y. xxix 486, 1915.

SNELL, GEORGE H.
Standpipe, Attleboro, Mass. (With F. A. Barbour) xx 302, 1906.

SNOW, BAYARD F.
Needham, gravel packed well. li 409, 1937.
Water supply of a state institution. l 197, 1936.

SNOW, ERNEST A., JR.
Studies on the removal of iron and manganese from water. (With Edward W. Moore) lvi 320, 1942.

SNOW, RUSSELL
Reforestation on the Quabbin Reservoir project. lxi 84, 1947.

SOULE, RALPH M.
1941 drought in New England (Symposium). lvi 237, 1942.

SOPER, GEORGE A.
Ozonization of water. xv 1, 1900-01.
Typhoid epidemic, Ithaca, N. Y. xviii 431, 1904.
Typhoid epidemic, Watertown, N. Y. xxii 87, 1908.

SPEAR, WALTER E.
Additional water supply, New York City. li 227, 1937.
City tunnel and conduits, Catskill Aqueduct, New York, N. Y. xxvii 315, 1913.

SPELLER, F. N.
Corrosion. xxxix 90, 1925.
Corrosion and its prevention. lii 228, 1938.
Matheson joint steel mains. xxxii 58, 1918.

SPILLMAN, MAX
Centrifugal pumps for Diesel engine drive. xxxvii 172, 1923.

SPINK, L. K.
Choosing a primary device for flow measurement. lx 15, 1946.

SPOONER, HERMAN W.
Haskell's Brook Reservoir and Dam, Gloucester, Mass. xix 27, 1905.
Subaqueous pipe and electric cable way, Gloucester, Mass. xxii 261, 1908.

STACY, GEORGE A.
Hydrants. iv 32, 1889-90.
Location of broken main and examination of hydrants in cold weather. vii 222, 1892-93.
Pumping without an air chamber. xx 379, 1906.
Service gate boxes. xi 339, 1896-97; xii 36, 1897-98.
Water works, Marlborough, Mass. xvi 139, 1902.

STANLEY, WILLIAM E.
Notes on water supply in North African Campaign. lviii 293, 1944.

STARR, ROBERT L.
Proceedings of the Air Raid Precaution School, Delayed bombs and bomb reconnaissance. lvii 110, 1943.
Proceedings of the Air Raid Precautions School, Elements of Teaching. lvii 100, 1943.

STEARNS, DONALD E.
Ground water supplies. lviii 338, 1944.

STEARNS, FREDERIC P.
Effect of storage upon water quality. v 115, 1890-91.
Selection of sources of water supply. vi 102, 1891-92.

STEARNS, RALPH H.
Decolorization of water by storage. xxx 20, 1916.

STERLING, CLARENCE I. JR.,
Water supply problems in Latin America. lx 221, 1946.

STETSON, T. M.
Watuppa Ponds for water supply of Fall River, Mass. i June 3, 1886-87.

STEVENS, FRED O.
Efficiency of pipe jointing compounds. xxxiv 102, 1920.
Mechanical filtration, Putnam, Conn. xxxvii 103, 1924.
Steam pump 35 years old. xxxvii 12, 1923.

STEVENS, JOHN C.
Beauty—an investment. xliii 370, 1929.

STEVENSON, W. L.
Flood of March 1936, Pennsylvania. li 80, 1937.

STICKEL, PAUL W.
Forests and the evaporating power of air. xlvii 229, 1933.

STILLMAN, FREDERICK B.
Watershed practices of Bridgeport Hydraulic Co., and aerial watershed surveys. lxi 302, 1947.

STONE, CHARLES A.
Electrolysis of water pipes. (With H. C. Forbes) ix 25, 1894-95.

STORRIE, WILLIAM
Toronto water works extension—a general description of the system. lxi 1, 1947.

STORRS, HARRY A.
Electrolysis. x 33, 1895-96.

STORY, CARROLL F.
Ludlow filters, Springfield, Mass. xxiii 229, 1909.

STORY, STEPHEN B.
Meter reading and billing, Rochester, N. Y. xxxix 71, 1925.
STUART, C. A.
Sanitary significance of coliform bacteria in water. iv 355, 1941.
STUART, F. E.
Electronic principle of water purification. lx 236, 1946.
Powdered activated carbon in water purification. xivi 312, 365, 1932.
STUART, H. W.
Improvement in centrifugal casting process. (With S. E. Linderman) xlviii 423, 1934.
STUDLEY, JAMES
(With Howard E. Bailey)
The use of activated carbon in treating open reservoirs. lxi 135, 1947.
SUDRABIN, L. P.
(With F. J. LeFebvre)
Effect of cathodic protection on rust-tubercle pH. lxiv 309, 1950.
SULLIVAN, DANIEL M.
Dual system of water mains. lii 78, 1938.
Enforcing payment of water bills. lii 244, 1938.
SULLIVAN, E. J.
Chlorination of pipe line, New Bedford, Mass. xlix 221, 1935.
Cross-connections and the plumbing testing laboratory in the New Bedford Vocational School. liv 179, 1940.
Pollution of private water supplies. liii 307, 1939.
SULLIVAN, WILLIAM F.
Cold water troubles—a symposium. (With P. R. Sanders, G. H. Finneran, and F. H. Kingsbury.) xlviii 326, 1934.
Collapse of hot water boilers. xlix 200, 1935.
Nashua fire of May 4, 1930. xlvi 204, 252, 1932.
Remodeled pumping station, Nashua, N. H. l 283, 1936.
Tests of large meters and fire service devices, Lowell, Mass. xix 264, 1905.
Water uses difficult to control. xxviii 377, 1914.
SUTER, RUSSELL
Control of public water supplies by Conservation Commission, New York State. xxix 520, 1915.
SWAIN, GEORGE F.
Comparing economy of structures of different classes. ii March 32, 1887-88.
Influence of forests upon rainfall and stream flow. i March 11, 1886-87.
SWAN, CHARLES H.
Covered reservoirs. iii 45, 1888-89.
SWAN, G. L.
Reliability features of electrically operated pumping stations. (With R. C. Dennett) xli 268, 1927.
SWARTS, GARDNER T.
Difficulties in water purification. xxv 191, 1911.
Imitation of nature in purification of water. xiii 1, 1898-99.
SWARTZ, SAMUEL O.
Algae control and method of enumeration. lxiv 72, 1950.
SWEENEY, JAMES A.
Distribution system maintenance. lii 318, 1938.
SWEETSER, ROBERT C.
Leptomitus in drinking water. xxvii 282, 1913.
SYMONDS, HENRY A.
Court decisions in purchase of Braintree Water Supply Co. xxxvi 426, 1922.
Engines in small water works. xxxiii 153, 1919.
Leadite joints. xxix 557, 1915.
Municipal water works financing in Massachusetts. (With C. W. Sherman and W. S. Johnson.) xxx 279, 1916.
SYMONDS, ALLEN M.
Highlights of private water company operation. lxii 229, 1948.
SYNAN, JOHN F.
Chlorine dioxide—a new development in treatment. (With J. D. MacMahon and G. P. Vincent.) lviii 264, 1944.
Chlorine dioxide as a bactericide in water works operation. (With R. N. Aston) lxii 80, 1948.

TALBOT, BENJAMIN
Linings and covering for water pipes. xl 446, 1926.
TANKARD, ERNEST E.
Pressure filtration. lxiv 299, 1950.
TARBETT, R. E.
Public water supply in the Civilian Defense Program. lvi 221, 1942.
TARLTON, ELLIS A.
Algae control at Danbury, Conn. lxiii 165, 1949.
TAYLOR, EDWY L.
Water rates. xlix 360, 1935.
TAYLOR, LUCIAN A.
Dam, Woodbridge, Conn. vi 51, 1891-92.
Dam, Quincy, Mass. iii 167, 1888-89.
Reservoir embankments. viii 130, 1893-94.
Tapping band on cast iron pipe. ix 229, 1894-95.
Water meter experience. vi 182, 1891-92.
Water meters. i Sept. 57, 1886-87.
Water works, Newport, N. H. xii 145, 1897-98.
TAYLOR, STEPHEN H.
Breaks in water mains, service pipes and hydrants—a symposium. (With F. A. McInnes, S. E. Killam, F. A. Marston, C. W. Mowry, and G. H. Finneran.) xlv 30, 1931.
Machinery vs. hand labor in pipe laying. xxxix 445, 1925.
Regulation of water pipes within buildings. l 129, 1936.
Second force main, New Bedford, Mass. xlix 206, 1935.
Water supply, New Bedford, Mass. xxxvi 370, 1922.
TERZAGHI, CHARLES
Soil studies for Granville Dam, Westfield, Mass. xliii 191, 1929.
THOMAS, HAROLD A., JR.
Mathematics in the water works laboratory. lx 153, 1946.
THOMAS, HARRY L.
Producer gas plant, Hingham, Mass. xxii 1, 247, 1908.
THOMAS, ROBERT J.
Standard specifications for water meters. xxx 430, 1916.
Water works, Lowell, Mass. xxvii 1, 247, 1913.
THOMPSON, G. WILBUR
Plumbers and water works superintendents. xxxv 107, 1921.
THOMPSON, J. G.
Lime for water works use. liii 255, 1939.

THOMPSON, RUDOLPH E.
Chlorine studies and taste production. (With N. J. Howard) xl 276, 1926; xli 59, 1927.
THOMPSON, SANFORD E.
Collapse of filter roof, Lawrence, Mass. xxii 237, 1908.
THOMSON, JOHN
Accuracy of meters. viii 58, 1893-94.
Testing water meters. x 77, 111, 1895-96.
THWAITS, E. H.
Steel pipe for water mains. lii 93, 1938.
TIFFANY, A. N.
Water treatment at Groton, Conn. (With Arthur L. Shaw) lv 233, 1941.
TIGHE, JAMES L.
Municipal water supply revenue. xviii 352, 1904.
Odors and tastes, Holyoke, Mass. xxiii 324, 1909.
TILDEN, J. A.
Repairs to wrought iron pipe main. iii 202, 1888-89.
TOUMEY, J. W.
Forestry in relation to public water supplies. xxxi 247, 1917.
TOWER, D. N.
Air in a tube-well pumping plant. xii 189, 1897-98.
Water supply, Cohasset, Mass. xxix 160, 1915.
TRACY, EDWARD L.
Emergency water supply for Rutland, Vt., following flood of 6/3/47. lxii 103, 1948.
Observations on water samples from cement-asbestos pipe systems in Vermont. lxiv 164, 1950.
Stream pollution abatement in Vermont. lxi 74, 1947.
1941 drought in New England. (Symposium) lvi 237, 1942.
TRAGER, LEONARD W.
Stream pollution abatement in New Hampshire. lxi 68, 1947.
Sanitation and public health experiences in Europe. lx 48, 1946.
1941 Drought in New England (Symposium). lvi 237, 1942.
TRAUTWINE, JOHN C., JR.
Water purification, Philadelphia, Pa. xxii 419, 1908.
TREMBLAY, J. A.
Water works, Quebec, Que. xxxix 208, 1925.
TRIBUS, LOUIS L.
Water works construction and litigation, Newton, N. J. xxiii 145, 1909.
TRYON, JAMES E.
What a water supply engineer can do in the fire department. ix 93, 1894-95.
TUBBS, J. NELSON
Municipal supply not to operate motors. vi 152, 1891-92.
TURNER, HOMER R.
Operating problems of a small water department. xxxi 633, 1917.
TURNER, HOWARD M.
Additions to the Cambridge water supply. xlviii 28, 1934.
TURNER, JAMES V.
Ammonia-chloride treatment, East Providence, R. I. (With C. L. Pool) xlvii 13, 1933.
Foundation of Scituate Dam, Providence, R. I. xl 517, 1926.
TYLER, RICHARD G.
Fineness modulus for filter sands. xxxix 239, 1925; xl 24, 1926.
Loss of head in rapid sand filters. (With W. A. Danielson and M. LeBosquet, Jr.) xl 322, 1926.

UNDERWOOD, WILLIAM L.
Mosquitoes. xviii 161, 1904.

VAN GILDER, LINCOLN
Atlantic City water works. xlv 66, 1931.
High pressure fire system, Atlantic City, N. J. xxxiv 146, 1920.
VENNER, JOHN
Municipal use and waste of water. xvii 268, 1903.
VINCENT, G. P.
(With John F. Synan and J. D. MacMahon.)
Chlorine-dioxide a new development in treatment. lviii 264, 1944.
VOGELSON, J. O.
Mortality rates in relation to water supply, Philadelphia, Pa. xxviii 127, 1914.
VOSS, WALTER C.
Proceedings of the Air Raid Precaution School. Effects of bombings on structures and other installations. lvii 127, 1943.

WADDELL, THEODORE N.
Financing municipal water supply enterprises. xxxviii 321, 1924.
WADSWORTH, LEWIS L.
Water supply, Madison, Anson, and Emden, Maine. xxxi 207, 1917.
WAGNER, BERNARD M.
Rates for water supply. xxix 1, 1915.
WALDEN, A. E.
Construction of dams. xxviii 268, 1914.
WALKER, CHARLES K.
Difficulties in water works management. xi 341, 1896-97.
High service reservoir, Manchester, N. H. x 66, 1895-96.
Lime to thaw pipes. vii 220, 1892-93.
Portable boiler for pipe thawing. xviii 217, 1904.
WALKER, WILLIAM H.
Prevention of red water plague. xxxiv 33, 1920.
Relative corrosion of iron and steel pipe. xxvi 7, 1912.
WALSH, JOHN H.
"Universal" cast iron pipe. xxxi 490, 1917.
WARING, F. H.
Ohio River flood of 1936. li 103, 1937.
WARREN, H. S.
Electrical grounds on water pipes. xlviii 350, 1934.
WASTENEYS, HARDOLPH
Purification experiments, Brisbane, Australia. xxv 422, 1911.
WATSON, GEORGE L.
Selling your water works. lxii 117, 1948.
WATSON, HAROLD
Changes in power for pumping, Newport, R. I. xliii 410, 1929.
Increase of water facilities to meet wartime demands at Newport, R. I. lxi 211, 1947.
WEBER, HAROLD
New England rainstorm, Nov. 3-4, 1927. (With C. F. Brooks) xlii 91, 1928; xliv 106, 1930.
Rainfall of New England. xlii 137, 278, 291, 414, 1928; xliv 6, 19, 32, 45, 57, 1930.
WEDEN, DAVID B.
American selective service. lv 1, 1941.

WELLINGTON, MARSHALL S.
Free-residual chlorination of the New Haven Water Co. (With S. Jacobson) lx 363, 1946.
Improving water quality by cleaning reservoirs and draining swamps. lxiv 179, 1950.
Introduction of pre-chlorination of slow sand filters. (With S. Jacobson) lxiii 128, 1949.
Taste and odor control, New Haven Water Co. liii 171, 1939.
Watershed sanitation. lii 343, 1938.
WELLS, GEORGE L.
"Wyckoff" water pipe. xiii 288, 1898-99.
WELLS, GEORGE M.
Water purification plant, Miraflores, C. Z. xxviii 238, 1914.
WELLS, WILLIAM F.
Automatic transfer fermentation tube battery for determination of B. coli in water. xlvi 283, 1932.
WELSH, J. N.
Effects of municipal water treatment on boiler-water conditioning. lxiii 297, 1949.
WENTWORTH, FRANKLIN H.
Field engineering service, National Fire Protection Assoc. xli 428, 1927.
WENTWORTH, JOHN P.
Additional ground water supply, Woburn, Mass. li 430, 1937.
WEST, FRANCIS D.
Recent developments in chlorination. xlv 136, 1931.
Torresdale filter plant, Philadelphia, Pa. (With J. S. V. Siddons) xxvii 358, 1913.
WEST, VERNON F.
Costs of lead substitutes for pipe joints. xxxvii 75, 1923.
WESTON, ARTHUR D.
Economic conditions and water supplies. xlvi 214, 1932.
Experiences with the Public Works Administration—A symposium. (With F. A. Barbour, H. J. Lockwood, A. L. Shaw, W. J. Scott, and Earl Devendorf.) xlix 40, 1935.
Flood of March, 1936, Massachusetts. li 90, 1937.
Gastro-enteritis, Peabody, Mass., 1913. xxxiv 193, 1920.
Health laws relating to public water supplies of Massachusetts. xxxviii 333, 1924.
Legal aspects of financial management of water works in Mass. (Presidential address.) xliii 328, 1929.
Mass. Dept. of Public Health and the emergency protection of public water supplies. lv 9, 1941.
Sanitation of watersheds. xlviii 806, 1934.
Scoring of surface water supplies. xlix 82, 1935.
State emergency plan of the Commonwealth of Massachusetts. lv 489, 1941.
Stream pollution abatement in Mass. lxi 80, 1947.
WESTON, EDMUND B.
High pressure fire service, Providence, R. I. xiii 85, 1898-99.
Macadam road thawed with steam. xiii 90, 1898-99.
Mechanical filtration of water. xiv 333, 1899-1900.
WESTON, ROBERT S.
Auxiliary water supply, Brockton, Mass. xxx 324, 1916.
Corrosive action of water on metals. xxiv 559, 1910.
Cristatella in reservoir, Henderson, N. C. xiii 20, 1898-99.
Deferrization and demanganization of water. xxviii 27, 1914; l, 231, 1936.
Development of water purification, New England. xlv 315, 1931.
Experiments with tube-loy pipe. lvi 174, 1942.
Improvement in water supply, Keene, N. H. (With G. A. Sampson) xl 1, 1926.
Improvement of water supply, Braintree, Mass. xlix 53, 1935.
Lead poisoning and its prevention. xxxv 126, 1921; xxxiv 239, 1920.
Manganese in impounded water supplies. (With A. E. Griffin) xlvii 40, 280, 1933.
Mechanical filter bottoms and strainer systems. xxxi 474, 1917.
Neutralization of corrosive action. li 384, 1937.
Period of storage and microorganisms in reservoirs. xxxix 225, 1925.
Purification of salt water. xxv 386, 1911.
Rubber pipe joints. xxii 310, 1908.
Wakefield water supply. xlvii 239, 1932.
Water purification, New Orleans, La. xvii 27, 157, 1903.
Water supply of Northborough, Mass. li 248, 1937.
WHEELER, RALPH N.
Wire fences and concrete posts, N. Y. water supply. xxx 124, 1916.
WHEELER, WILLIAM
Cement for pipe joints. xxxvii 62, 1923.
Sand filter, Ashland, Wis. xi 301, 1896-97.
WHERRY, WILLIAM M.
Rate making. xl 249, 1926.
WHIPPLE, GEORGE C.
Asterionella. (With D. D. Jackson) xiv 1, 1899-1900.
Decarbonation of water supplies. xxvii 193, 445, 1913.
Growth of organisms in water pipes. xii 1, 1897-98.
Light and diatom growths. xi 1, 1896-97.
Plumbing regulations. xxxv 117, 1921.
Quality of Massachusetts water supplies. xxxvi 40, 1922.
Raphidomonas. xi 348, 1896-97.
Temperature of surface waters and growth of microorganisms. ix 202, 1894-95.
Typhoid epidemic, Cleveland, O., 1903-04. xx 266, 1906.
Typhoid epidemic, Kennebec Valley, Me., 1902-03. (With E. C. Levy) xix 163, 1905.
Water supplies, New York Metropolitan District, N. Y. xix 451, 1905.
Water supply, Geneva, Switzerland. (With A. Betant) xxxv 19, 1921.
WHIPPLE, MELVILLE C.
Corrosion problem in Cambridge, Mass. li 376, 1937.
Design and equipment of water works laboratories. xlii 339, 1928.
Hydraulic service-characteristics of small metallic pipes. (With G. M. Fair and C. Y. Hsiao.) xliv 499, 1930.
Operation of rapid sand filters, Cambridge, Mass. (With H. C. Chandler) xli 218, 1927.
Operating experiences, Cambridge, Mass., filtration plant. (With F. E. Smith) xlv 321, 1931.

Review of 19th annual report, London Metropolitan Water Board. xl 33, 1926.
WHITE, GEORGE V.
Great September storm, 1932. xlvii 164, 1933.
Rainfall in New England, Part 1, Rainfall in Mass. lvi 405, 1942.
Rainfall in New England, Part 2, Rainfall in Me., N. H., and Vt. lvii 15, 1943.
Rainfall in New England, Part 3, Rainfall in R. I., Conn., and Eastern N. Y. lvii 201, 1943.
WHITE, JOHN H.
Corrosion control by threshold treatment. lxiii 96, 1949.
WHITE, RALPH H.
Some problems in water works construction. lxiv 8, 1950.
WHITEHEAD, ROBERTA
Water (Poem). lv 384, 1941.
WHITNEY, JOHN C.
Care of water meters. ix 106, 1894-95.
Looking backward—a symposium. (With A. W. F. Brown, J. C. Chase, B. I. Cook, L. M. Hastings, and J. S. Maxcy.) xlvi 76, 1932.
WHITTEMORE, W. P.
High water alarm for reservoirs. iii 21, 1888-89.
WIGGIN, DAVID C.
Survey of the interior water piping in Connecticut. lix 71, 1945.
WIGMORE, R. W.
Water works, Saint John, New Brunswick. xlix 76, 1935.
WILCOX, DELOS F.
Regulation of private water companies, New York City. xxxi 550, 1917.
WILLIAMS, FREDERICK C.
Storage facilities, Pawtucket, R. I. xliii 113, 1929.
WILLIAMS, GARDNER S.
Distribution systems. xiv 97, 1899-1900.
WILLIAMS, HENRY J.
Value of fuels. xix 90, 1905.
WILLIAMSON, ALFRED
Electrically operated valves. xxix 507, 1915.
WILLIAMSON, E. E.
High pressure fire system, Boston, Mass. xli 194, 1927.
WINSLOW, CHARLES-EDWARD A.
Bacteriological water analysis. xv 459, 1900-01.
Responsibility for causation of typhoid. (With W. T. Sedgwick) xx 51, 1906.
WINSLOW, FREDERIC I.
Care of large watersheds. xxxvii 385, 1923.
Tunnel and subway construction, Boston, Mass. xxvi 328, 1912.
WINSLOW, GEORGE E.
Air in pressure gages. ix 248, 1894-95.
Effect of water hammer on cement lined pipe. iv 191, 1889-90.
Hydrant outlets. v 26, 1890-91.
Water ram caused by direct-acting pumping engines. xv 493, 1900-01.
Water supply, Waltham, Mass. viii 118, 1893-94.
WINSOR, FRANK E.
Diversion of interstate waters for domestic water supply. Connecticut vs. Massachusetts. xlv 267, 1931.
Water supply, Providence, R. I. xxxvi 323, 1922.
WINSOR, G. A.
Grubbing Kensico Reservoir, N. Y. xxix 554, 1915.
WISE, R. E.
Diversion conduit and waste works, Richards Corner Dam, New Hartford, Conn. xxxi 595, 1917.
WOLFE, THOMAS F.
Cement linings for cast iron pipe. lx 389, 1946.
Cast iron publicity bureau. xl 345, 1926.
Linings for cast iron pipe. l 414, 1936.
WOLMAN, ABEL
Municipal water and sewerage costs in Maryland. xli 439, 1927.
WOOD, CHARLES R.
Sand-spun pipe. xxxix 85, 1925.
WOOD, DANA M.
Water works, Greenwich Water Company, Greenwich, Conn. xlii 378, 1928.
WOOD, EDMUND
Water supply, New Bedford, Mass. xi 202, 1896-97.
WORTHEN, W. D.
Public service regulations. xxxi 163, 1917.
WORTHINGTON, CHARLES C.
Worthington pumping machinery. xiii 229, 1898-99.
WRIGHTINGTON, SYDNEY R.
Betterment assessment method for financing water main extensions. xlix 162, 1935.
WURAFTIC, JOSEPH
Comparative efficiencies of filter washing. lv 411, 1941.

YAXLEY, R. G.
Taste and odor control in small plant. xlix 152, 1935.
YOUNG, HENRY A.
Water works, Camaguey, Cuba. xxiii 264, 1909.

ZIEGFELD, ROBERT L.
Installation of lead service pipe. liv 1, 1940.
ZINKER, R. H.
Backflow in water supply systems. liii 458, 1939.

ASSOCIATION AFFAIRS

AWARD OF DEXTER BRACKETT MEMORIAL MEDAL.

1916 Caleb Mills Saville. xxxi 648, 1917.
1917 Albert L. Sawyer. xxxiii 105, 1919.
1918 David F. Heffernan. xxxiii 357, 1919.
1919 Robert E. Horton. xxxiv 357, 1920.
1920 Robert Spurr Weston. xxxv 398, 1921.
1921 X. Henry Goodnough. xxxvi 478, 1922.
1922 Charles W. Sherman. xxxvii 324, 1923.
1923 George A. Johnson. xxxviii 306, 1924.
1924 Robert E. Horton. xxxix 276, 1925.
1925 John F. Laboon. xl 397, 1926.
1926 Caleb Mills Saville. xli 293, 1927.
1927 H. W. Clark. xlii 458, 1928.
1928 Francis W. Dean. xliii 321, 1929.
1929 Robert A. Cairns. xliv 534, 1930.
1930 Frank C. Hale. xlv 373, 1931.
1931 Thaddeus Merriman. xlvi 408, 1932.
1932 Charles W. Mowry. xlvii 315, 1933.
1933 Caleb Mills Saville. xlviii 469, 1934.
1934 Karl R. Kennison. xlix 428, 1935.
1935 Elwood L. Bean. l 425, 1936.
1936 George C. Bunker. li 467, 1937.
1937 John R. Baylis. lii 468, 1938.
1938 Roger W. Esty. liii 507, 1939.
1939 George A. Sampson. liv 471, 1940.
1940 John R. Baylis. lv 563, 1941.
1941 Gordon M. Fair. lvi 399, 1942.
1942 Arthur V. Ruggles. lvii 370, 1943.
1943 Thomas R. Camp. lvii 368, 1944.
1944 Joseph A. McCarthy. lix 366, 1945.
1945 Francis F. Longley. lx 396, 1946.
1946 Frederick O. A. Almquist. lxi 334, 1947.
1947 William Storrie. lxii 277, 1948.
1948 Edward L. Tracy. lxiii 363, 1949.
1949 Marshal S. Wellington and Samuel Jacobson. lxiv 359, 1950.

COMMEMORATIVE AWARD

1948 John J. Baffa, in memory of Fayette F. Forbes. lxiii 365, 1949.
1949 Clarence L. Ahlgren, in memory of Francis W. Dean. lxiv 361, 1950.

COMMITTEE REPORTS ON ASSOCIATION AFFAIRS

Committee on badges for members; appointed June 17, 1886, i 81, 1886; report, iv 9, 15, 1889-90.
Committee on certificate of membership, appointed, xxvii 553, 1918.
Committee on convention funds rules: appointed, xxviii 564, 1914; report, xxix 235, 1915.
Committee on Dexter Brackett memorial: appointed, xxix 471 1915; report, xxix 579, 1915; xxx 492, 1916; xxxi 1, 1917.
Committee on educational service: report, xlv 403, 1931.
Committee on exchange of sketches: appointed, i Sept. 16, 1886; iv Sept. 9, 1889; reports, i Sept. 16, 1886; i March 27, 1887; ii Sept. 22, 86, 1887; ii Dec. 34, 1887; iii Sept. 17, 1888.
Committee on headquarters: appointed, vi 11, 1891-92; report, x 11, 1895-96.
Committee on revision of the constitution: appointed, xiv 374, 1899-1900; report, xv 207, 1900-01; report, xlviii, 488, 1934.
Committee on investments: report, liv 498, 1940.
Committee on reciprocal relations with Institute of Water Engineers; lx 429, 1946.
Committee on rules governing commemorative award; lxii 204, 1949.
Committee on reciprocal relations with the Institute of Water Engineers; lxiv 390, 1950.

CONSTITUTION

Constitution and by-laws adopted June 21, 1882. 8, Proc. 1882; 5, Trans. 1883; 5, Trans. 1884; 5, Trans. 1885.
—Amendment of Article III. 165, Trans. 1885; iv 177, 1889-90.
—Amendment of Article VII. xiii 74, 1898-99.
—Revision discussed, xv 207, 1900-01.
Constitution and by-laws adopted September 19, 1900. xv 298, 1900-01; xvi 1, 1902.
—Amendment of Section I. xix 233, 1905.
—Amendment of Section II. xvii 421, 1903; xxxi 658, 1917; xlix 105, 1935.
—Amendment of Section III. xxiv 247, 1910.
—Amendment of Section IV. xix 233, 1905.
—Amendment of Section V. xxiv 247, 1910; xlv 372, 1931.
Amendment of Articles II, III, IV, V, VI, IX, X. lvi 124, 1942.
Revision of Article II, Section 3. lix 365, 1945.
Amendment of Article VII. lix 365, 1945.
Amendment of Article VIII, Section 1. lxiv 86, 1950.

GENERAL AFFAIRS AND ADDRESSES

Address. (Robert E. Peary) xxx 497, 1916.
Address and verses. (Olney Arnold) 215, Trans. 1885.
An appreciation of William T. Sedgwick. xx 94, 1906.
Affiliation of Technical Societies. xxxvi 311, 1922.
Badge adopted. iv 9, 15, 1889-90; vii 9, 1892-93.
Badge reproduced around a fountain below the Croton Dam. xix 380, 1905.
Cooperation in publishing papers proposed by Association of Engineering Societies. ix 137, 1894-95.
Deposit of funds. xix 237, 1905; xxi 497, 1907.
Exchange of publications with N.E.W.W.A. xx 372, 1906.
Gavel presented by the American Water Works Association to N.E.W.W.A. iv 6, 1889-90; xviii 311, 1904.
Gavel presented by J. C. Chase to N.E.W.W.A. xix 119, 1905.
Headquarters established at Tremont Temple, Boston. xi 105, 1896-97; xi 277, 1896-97; (Discussion) vi 11, 1891-92; x 11, 18, 1895-96; enlarged, xx 103, 1906.
Initiation fees remitted to members admitted to New England water Works Association during 1915. xxix 147, 230, 1915.
Journal issued as the organ of the N.E.W.W.A. Salutatory. i Sept. 1, 1886-87; issued quarterly, (Discussion) ii Sept. 85, 1887-88; Index authorized, xvi 401, 1902; xxviii 110, 1914; Price of back numbers, xxi 259, 1908; xxv 234, 1911; Subscription allowance, xvii 421, 1903.
Letter to New England Water Works Association on retaining national forests under Federal Control. (Gifford Pinchot) xxvii 156, 1913.
Library founded. x 148, 1895-96.
Mayor Malcolm E. Nichols Trophy Award. xli 296, 1927.
New silver faucet: verses. (Desmond FitzGerald) xviii 481, 1904.

Presentation of cabinet to W. R. Hill. xii 191, 1899-1900.
Presentation of silver pitcher and goblet to W. M. Hawes. xviii 321, 1904.
Presentation of watch to F. E. Merrill. xx 488, 1906.
Resolution in favor of post-war planning programs. lviii 165, 1944.
Resolution of N.E.W.W.A. that national forests should be retained under national control. xxvii 297, 1918.
Resolution to institution of Water Engineers extending sympathy for their wartime difficulties. liv 470, 1940.
Resolution to request War Department for information on guarding water supplies. lvi 255, 256, 1942.
Resolution regarding unnecessary drawing of water at the time of an air raid warning. lvi 128, 1942.
Sub-lease of N.E.W.W.A. headquarters. xvii 300, 302, 1903.
Water meter: verses. (J. B. Laying) i Sept. 57, 1886-87.

HISTORICAL

History of N.E.W.W.A. (C. W. Sherman) xlvi 1, 1932.
Looking backward—a symposium. (A. W. F. Brown, J. C. Chase, B. I. Cook, L. M. Hastings, J. S. Maxcy, Dwight Porter, and J. C. Whitney.) xlvi 66, 1932.
Reports of experience of members of N.E. W.W.A. (Table) 89, Trans. 1884.
Twenty years after—a restrospect. (R. C. P. Coggeshall) lxvi 271, 1902.
Up to 1885—some reminiscences. (R. C. P. Coggeshall) xviii 300, 1904.

MEMOIRS OF DECEASED MEMBERS

Andrews, Frank A. xx 233, 1906.
Atkinson, Edward. xx 124, 1906.
Bacon, James P. xxxv 197, 1921.
Bacot, R. C., Jr. xxiii 111, 1909.
Bagnell, Richard W. xxxii 181, 1918.
Baldwin, Charles Henry. xxxiii 138, 1919.
Ball, Phineas. ix 189, 1894-95.
Bancroft, Lewis M. xxxviii 96, 1924.
Barbour, Frank A. lxi 330, 1947.
Barbour, William S. iii 143, 1888-89.
Barnes, Roland Dwight. xxxiii 137, 1919.
Batchelder, George E. xiii 349, 1898-99.
Batchelder, George W. xliii 236, 1929.
Battles, James Monroe. xv 455, 1901.
Beals, Joseph E. xxiii 455, 1909.
Bickford, Nathan B. xv 200, 1900-01.
Binnie, Wm. James Eames. lxiv 82, 1950.
Bisbop, George H. xxiii 456, 1909.
Black, Ernest Bateman. lxiv 79, 1950.
Bowers, George. xlv 87, 1931.
Bond, Philip E. lxiv 81, 1950.
Boyce, W. C. iv 65, 1889-90.
Brainard, C. M. vii 195, 1893-94.
Brackett, Dexter. xxix 592, 1915.
Brigham, Harold L. lvii 78, 1943.
Broatch, John C. xviii 245, 1904.
Brush, Charles B. xii 72, 1897-98.
Burke, James E. xviii 334, 1904.
Burnham, Wm. Winslow. xx 337, 492, 1906.
Burnie, James. xxxii 389, 1918.
Campbell, Charles H. xxiii 111, 1909.
Carpenter, George A. xlii 1, 1928.
Chadbourne, Edward J. xxxii 338, 1923.
Chaffee, Fred I. x 140, 1895-96.
Chandler, Henry. xv 224, 1900-01.
Chase, John Carroll. li 480, 1937.
Clark, Dennis W. xviii 486, 1904.
Clark, Ezra. xi 275, 1896-97.
Clark, Harry W. lxiv 187, 1950.
Coffin, Freeman C. xx 493, 1906.
Coggeshall, Robert C. P. xxxvi 614, 1922.
Collins, Louis P. xxi 320, 1907.
Conant, Henry W. xiv 193, 1899-1900.
Conard, William R. lx 329, 1946.
Cook, Henry A. xix 142, 1905.
Cook, Horace J. lviii 279, 1944.
Coolidge, Samuel S. iii 209, 1888-89.
Coryell, Martin. ii Sept. 101, 1887.
Cotton, J. Warren. 83, Trans. 1884.
Crehore, Charles F. viii 108, 1893-94.
Crilly, Patrick F. xv 364, 1900-01.
Croes, John J. xx 234, 1906.
Curtis, George D. xviii 334, 1904.
Davidson, James. vi 188, 1891-92.
Davis, F. A. W. xxiii 288, 1909.
Decker, John H. xv 455, 1900-01.
Dennett, Nathaniel. xiv 375, 1899-1900.
Dixon, William. viii 108, 1893-94.
Doherty, Cornelius M. x 140, 1895-96.
Downey, William. xvi 247, 1902.
Drown, Thomas M. xviii 489, 1904.
Dwyer, Bartholomew. xxiii 111, 1909.
Dyer, Charles R. viii 195, 1893-94.
Eaton, Horace L. x 139, 1895-96.
Eddy, Harrison Prescott. li 482, 1937.
Ellis, George A. xviii 105, 1904.
Ellsworth, Samuel M. lviii 280, 1944.
Evans, Myron E. xxi 186, 1907.
Fales, Almon L. lxiii 359, 1949.
Fales, Frank L. xix 383, 1905.
Fanning, John T. xxvi 95, 1912.
Farnham, Irving T. xxii 376, 1908; xxiii 111, 1909.
Fels, August. xix 383, 1905.
Finneran, George H. lxiv 187, 1950.
Forbes, Fayette F. l 247, 1936.
Forbes, Fred B. xliii 237, 1929.
Freeman, John Ripley. xlvii 100, 1933.
Fteley, Alphonse. xviii 104, 1904.
Fuller, Frank E. xvi 247, 1902.
Fuller, Frank Louis. xxxiv 138, 1920.
Fuller, George Warren. xlviii 380, 1934.
Gale, James M. xvii 303, 1903.
Garrett, Jesse. xiii (1898-99.
Gear, Patrick. lii 489, 1938.
Geer, Harvey M. xxxiii 215, 1919.
Gidley, Henry T. lviii 403, 1944.
Gifford, Frank J. lx 107, 1946.
Gilderson, Dennis H. xxiv 341, 1910.
Glover, Albert Seward. xxxi 319, 1917.
Goodnough, Xanthus Henry. l 244, 1936.
Gould, Amos A. xxvi 95, 1912.
Gow, Frederic W. xxxv 88, 1921.
Gow, Robert M. vii 88, 1892-93.
Gowing, Earle Harley. xxiv 256, 1910.
Granniss, Sherman E. viii 52, 1893-94.
Greene, Charles E. lviii 282, 1944.
Griswold, Florence M. xxxvi 472, 1922.
Grush, Benjamin S. vi 64, 1891-92.
Haberstroh, Charles E. xxxv 399, 1921.
Hall, Francis E. xlii 365, 1928.
Hague, Charles A. xxvi 95, 1912.
Hammond, Frank E. xxxvii 124, 1923.
Hancock, Joseph C. xvi 247, 1902.
Hansen, Paul. lviii 284, 1944.
Hapgood, Herbert L. xxxvi 820, 1920.
Harlow, Mellen S. xv 298, 1900-01.
Harrington, John L. x 76, 1895-96.
Harris, Dwight A. xviii 335, 1904.
Haskell, John C. xv 64, 1900-01.
Hastings, Valentine C. xxi 186, 1907.
Hatch, Edward L. xxxv 204, 1921.
Hathaway, Alfred R. xliv 356, 1930
Hawes, Louis E. xxv 187, 1911.
Hawes, William M. xii 292, 1897-98.
Hazelhurst, George Hall lv 312, 1941.

Heffernan, David A. lii 129, 1938.
Hermany, Charles. xxii 85, 1908; xxii 111, 1909.
Hill, Albert Banks. xliv 355, 1930.
Hodgdon, Frank W. xxxvii 434, 1923.
Hodge, Thomas A. ii March 36, 1887-88.
Holden, Andrew. xv 200, 1900-01.
Holden, Horace G. xviii 319, 1904; xxvii 549, 554, 1913.
Horton, Sylvanus D. ii June 27, 1887-88.
Hotchkin, George A. xvi 402, 1902.
Houston, Sir Alexander. xlviii 121, 1934.
Hunking, Arthur W. xxii 499, 1908; xxiii 111, 1909.
Jenkins, George S. xv 224, 1900-01.
Jenks, Henry F. xviii 487, 1904.
Kempton, David B. xiii 349, 1898-99.
Kennedy, Daniel. xlii 107, 1928.
Killam, Samuel Elbridge. lvii 76, 1943.
Kimball, George Albert. xxvi, 400, 1912.
King, George Alfred. xlvi 320, 1932.
Kinnicutt, Leonard Parker. xxv 187, 1911.
Kinsey, Harry H. xxxv 89, 1921.
Knapp, Louis H. xxviii 97, 1924.
Knowles, Morris. xlvi 433, 1932.
Knudson, Adolphus A. xxiii 455, 1909.
LaForest, J. O. A. xxii 499, 1908; xxiii 111, 1909.
Laing, William H. xv 456, 1900-01.
Leach, Samuel B. vi 145, 1891-92.
LeBarron, Eugene P. viii 160, 1893-94.
Linsley, Jo H. xv 364, 1900-01.
Locke, Augustus W. vii 227, 1892-93.
Locke, James W. xxii 60, 1908.
Lockwood, Joseph A. xii 72, 1897-98.
Loretz, Arthur J. L. xxi 499, 1907.
Mann, Thomas W. xx 233, 1906.
Marion, J. A. xix 142, 1905.
Martin, Alfred Earl. xxxvi 32, 1922.
Martin, Cyrus B. xvii 125, 1903.
Martin, Robert K. viii 160, 1893-94.
Martin, T. P. xxxiii 218, 1919.
Mayo, John. xxxiii 566, 1919.
Mazzur, Frank A. xli 474, 1927.
McCarthy, Daniel B. xxxiv 235, 1920.
McCallum, A. R. xxvi 95, 1912.
McClellan, William C. iii 99, 1888-89.
McLaughlin, Thomas H. viii 195, 1893-94.
Mead, Daniel Webster. lxiv 77, 1950.
Merrill, George Field. lvi 259, 1942.
Metcalf, Leonard. xl 421, 1926.
Miller, Alexander M. xviii 488, 1904.
Mills, Hiram F. xxxviii 98, 1924.
Morse, James W. xiv 193, 1899-1900.
Morse, Robert Brooks. l 108, 1936.
Mulhall, John F. J. xxi 187, 1907.
Murdoch, Gilbert. ix 8, 1894-95.
Murphy, Charles F. xiv 193, 1899-1900.
Nagler, Floyd A. xlviii 122, 1934.
Nason, William E. xi 275, 1896-97.
Nevons, Hiram S. ix 63, 1894-95; xviii 309, 1904.
Nibecker, Claude P. xxii 500, 1908; xxiii 111, 1909.
Nichols, William R. i Dec. 27, 1886-87.
Noyes, Albert Franklin. xi 275, 1896-97.
O'Brien, Alexander H. lvi 261, 1942.
Osborn, Weaver. viii 195, 1893-94.
Otis, John P. K. xix 143, 1905.
Paine, C. W. xxvi 95, 1912.
Parks, Charles F. xvii 303, 1903.
Pease, Aurelius G. xix 586, 1905.
Pengilly, Lewis H. iii 99, 1888-89.
Pierce, Charles E. xxxvi 616, 1922.
Pitman, William H. xxxvii 228, 1923.
Pope, Macy Stanton. xix 144, 1905.
Pratt, Robert Winthrop. xxxiv 235, 1920.
Reed, Wilmer. xi 276, 1896-97.
Reynolds, Abel. lvi 262, 1942.
Reynolds, Edwin. xxiii 142, 1909.
Richards, Walter H. xlvii 334, 1933.
Robbins, Franklin H. lviii 285, 1944.
Rogers, Henry W. xv 365, 1901; xviii 301, 1904.
Salisbury, Arnold H. xv 456, 1901.
Sanborn, James F. lxiv 185, 1950.
Sanders, Percy R. lxi 281, 1947.
Sawyer, Albert Livingstone. xlviii 120, 1934.
Sears, Walter Herbert. xxv 405, 1911.
Sedgwick, William T. xxxv 197, 1921.
Seymour, Charles W. S. viii 108, 1893-94.
Shirreffs, Reuben. xviii 487, 1904.
Smith, J. Waldo. xlix 113, 1935.
Sprague, Phineas. ii Dec. 35, 1887-88.
Stanwood, James Hugh. xi 275, 1896-97.
Stoddard, Samuel G. xv 457, 1901.
Stearns, Frederic Pike. xxxiv 28, 1920.
Stone, William M. xxxv 296, 1921.
Story, Carroll Fitch. xxiii 370, 1909.
Sweet, Kilburn S. xviii 486, 1904.
Symonds, Henry Allen. xlv 406, 1931.
Tarr, Richard L. xxxv 203, 1921.
Taylor, William D. viii 195, 1893-94.
Thomas, William H. xxvi 95, 1912.
Tidd, Marshall M. x 76, 1895-96.
Tighe, James L. lxi 328, 1947.
Tinkham, Samuel E. xxxvi 318, 1922.
Torrey, Frank Herbert. xlv 407, 1931.
Tucker, Herbert M. xxxvii 227, 1923.
Upton, Albert F. iii 99, 1888-89.
Wadhams, Joseph P. lviii 286, 1944.
Walker, Charles Kimball. xxvi 295-303, 1912.
Walker, Elton D. lviii 287, 1944.
Washburn, Lettice Roderick. xxxiii 139, 1919.
Weld, F. Floyd. vi 64, 1891-92.
Wescott, George P. xviii 488, 1904.
Weston, Robert Spurr. lviii 288, 1944.
Wheeler, Elbert. xliv 468, 1930.
Whidden, Hosea F. ii March 36, 1887-88.
Whittemore, W. P. xxvi 95, 1912.
Whittet, Rufus Mason. xxxiii 216, 1919.
Wilde, George E. xxii 376, 1908; xxiii 111, 1909.
Winship, Horace B. xiv 193, 1899-1900.
Winsor, Frank Edward. liii 532, 1939.
Wood, Irving Sparrow. xxxiv 90, 1920.
Woodburn, William F. xxxii 275, 1918.
Yates, Richard E. xii 72, 1897-98.
Young, Charles W. xxxv 202, 1921.

PORTRAITS

Anthony, Sidney, S. F. lxiv Frontispiece, 1950.
Bagnell, R. W. xxii 354, 1908.
Barbour, Frank A. xxxvi Frontispiece, 1922.
Batchelder, George E. xviii 324, 1904.
Batchelder, George W. xxvi Frontispiece, 1912.
Bowers, George. xix 147, 1905.
Brackett, Dexter. xviii 312, 1904.
Brehm, George C. xlvi Frontispiece, 1932.
Brigham, Harold L. lvii Frontispiece, 1943.
Bristol, Theodore L. xl Frontispiece, 1926.
Brooks, Edwin C. xviii Frontispiece, 1904.
Calderwood, Donald C. lxii Frontispiece, 1948.
Carlton, Leland G. lv Frontispiece, 1941.
Carpenter, George A. xlii Frontispiece, 1928.
Chace, George F. xviii 322, 1904.
Chase, E. Sherman. xlviii Frontispiece, 1934.

Clark, Horace L. lviii Frontispiece, 1944.
Coggeshall, Robert C. P. xvi 282, 1902; xxii 354, 1908.
Conroy, Walter C. lx 109, 1946.
Cook, Byron I. xviii 328, 1904, Plate XI.
Crandall, Frank H. xviii 328, 1904, Plate XII.
Darling, Edwin. xviii 308, 1904.
Ellis, George A. xvi 280, 1902.
Ellis, Richard H. xlvii Frontispiece, 1933.
Esty, Roger W. l Frontispiece, 1936.
Finneran, George H. xlv Frontispiece, 1931.
FitzGerald, Desmond. xviii 328, 1904.
Fuller, Harry U. li Frontispiece, 1937.
Gifford, Frank J. lx 107, 1946.
Glover, Albert S. xxii 354, 1908; xxxi 320, 1917.
Graff, Frederick. xxii 278, 1902; xxii 354, 1908.
Griswold, Harold W. lx Frontispiece, 1946.
Hall, Frank E. xvi 278, 1902; xxii 354, 1908.
Haskell, John C. xviii 328, 1904; Plate IX.
Hazen, Allen. xxv Frontispiece, 1911.
Heffernan, David A. xxxviii Frontispiece, 1924.
Holden, Horace G. xviii 320, 1904; xxii 354, 1908.
Kennison, Karl L. lix Frontispiece, 1945.
Kent, Willard. xviii 328, 1904, Plate X.
Killam, Samuel E. xxxiii Frontispiece, 1919.
King, Arthur C. lxiii Frontispiece 1949.
King, George A. xxiv Frontispiece 1910.
King, Howard M. xlix Frontispiece, 1935.
Kingsbury, Francis H. lvi Frontispiece 1942.
Knox, Joseph C. lxi 107, 1947.
Latrobe, Benjamin Henry. xxii 418, 1908.
Lyon, James W. xvi 276, 1902.
Macksey, Henry V. xxxiv Frontispiece, 1920.
Martin, Alfred E. xxii Frontispiece, 1908.
McInnes, Frank A. xxviii Frontispiece, 1914.
Merrill, Frank E. xviii 100, 1903.
Metcalf, Leonard. xxix Frontispiece, 1915.
Nevons, Hiram. xviii 310, 1904.
N.E.W.W.A.: Members present at twenty-first annual convention. xvi 284, 1902.
—Members present at twenty-fifth annual convention. xx 364, 1906.
—Surviving charter members, June 24, 1908. xxii 354, 1908.
Noyes, Albert Franklin. xi 275, 1896-97.
Rogers, Henry W. xvi 284, 1902.
Roosevelt, Nicholas I. xxii 426, 1908.
Sampson, George A. liii Frontispiece, 1939.
Saunders, Percy R. xxxvii Frontispiece, 1923.
Saville, Caleb M. xxxi Frontispiece, 1917.
Scott, Warren J. lii Frontispiece, 1938.
Sedgwick, William T. xx Frontispiece 94, 1906.
Shaw, Arthur L. lxi Frontispiece, 1947.
Shaw, Percy A. liv Frontispiece, 1940.
Sherman, Charles W. xxxv Frontispiece, 1921.
Smith, J. Waldo. xxvii Frontispiece, 1913.
Stacy, George A. xviii 326, 1904.
Stearns, Frederic P. xxxiv 28, 1920.
Sullivan, William F. xxx Frontispiece, 1916.
Taylor, Stephen H. xxxix Frontispiece, 1925.
Thomas, Robert J. xxiii Frontispiece, 1909.
Walker, Charles K. xvii Frontispiece, 1903; xxii 354, 1908.
Weston, Arthur D. xliii Frontispiece, 1929.
Weston, Robert S. xliv Frontispiece, 1930.
Winsor, Frank E. xli Frontispiece, 1927.

PROCEEDINGS
Including reports of officers and standing committees of the Association, presidential addresses and special non-technical addresses.
See EACH VOLUME OF THE JOURNAL.

TECHNICAL COMMITTEE REPORTS.
See SUBJECT INDEX.